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ART. 46.—*On the method of preventing the deterioration of vegetables. The culture of the Potato. Read before the New-York Horticultural Society, in* 1823, *by* WM. WILSON.

In treating of those causes which have a natural tendency to effect the deterioration of vegetables, it may be proper, in the first place, to observe that many of our most delicious vegetables were once, as they still are, in their original or natural state, possessed of very inferior qualities to those we find contained in such as have been long retained in a careful state of cultivation; and the greater the degree of improvement that may have been effected by cultivation, the greater is the care necessary to be observed by the horticulturist, to prevent it, in any degree, from falling back. And when we reflect that all those excellent vegetables which we cultivate for the use of our tables, are almost all of them very highly improved varieties from their original stocks, we cannot help being convinced of the great necessity there is for exercising care and skill, not only in the retaining of them in such a state, but for the rational purpose also of still farther endeavoring to increase that improvement so laudably commenced by ancient horticulturists.

Perhaps the whole of those vegetables known under the general name of Pot and Medicinal herbs, may be retained genuine by a very ordinary degree of care; their principal degree of improvement seeming chiefly to depend upon adaptation to such soils as are naturally the most congenial to the different varieties. But when we come to consider the most valuable and interesting kinds of vegetables, we shall easily perceive the very great degree of care that is necessary to be exercised in their cultivation in order to retain the improved varieties true and genuine. Of these we shall notice the Potato. This is a kind of vegetable the great value of which is universally known; it constitutes a most agreeable and permanent treat at the tables of all classes of society, and in some countries constitutes a very essential portion of the sustenance of the inhabitants: and I am persuaded there are but very few who have ever tasted the potato in such a state of perfection as it is generally to be found in Britain, who would be willing to accept of any other culinary production whatever, as its substitute. By far the greater proportion of potatos brought to the markets of this city are of an inferior quality, and this is a fact applicable to no other vegetable production, with which our markets are so profusely and eminently supplied; but it is a fact of great importance, and such as we consider highly deserving the most serious consideration of every man in society, the least concerned in the culture and management of this most interesting production. The question which here naturally presents itself is, whether there actually exists any insurmountable obstacle to the most successful culture of the potato, or whether its inferior qualities are owing to some deficiency or errors in its management and mode of culture. These are questions which we intend most explicitly to discuss, and submit our sentiments with great confidence of their being well grounded, as being the results of many years' careful practice and experience in the cultivation of this vegetable in various soils, from the heavy clay to the lightest sand. And in the first place, we hesitate not to assert it as our most confident opinion that there are no insurmountable obstacles to our obtaining abundant supplies of potatos for our markets of as good a quality as those of Britain or any other country. It was no uncommon thing some thirty years ago to meet with fields of potatos in some parts of Britain of as inferior qualities as any of those brought to our markets at present. But these instances were only found in soils which were naturally wet and heavy; and all their writers have very sagaciously recommended light dry soils for the culture of the potato, and only such soils are there generally appropriated for its cultivation; great care also is paid to the selection of the most proper sorts for planting. It is by confining their culture to such soils as prove most congenial for them in particular climates, and taking care to select proper ones for seed, that they are to be obtained in all that degree of dryness and fine flavor, which at once constitute them, of all other culinary vegetables, without a rival; and here it may be anxiously inquired, have we any soils at all in this section of our country capable of producing potatos of such excellent qualities? I answer yes, abundance. But we, at the same time, like the inhabitants of Britain too, possess those that will seldom fail to contaminate every potato root produced in them; and those soils that prove the very bane of the potato here, are just such as prove the most congenial for them in Britain. And so, on the contrary, the best soils, by far, for producing the driest and best flavored potatos here, and altogether the most abundant crops, are those of a strong heavy loam. These I acknowledge are bold and rather novel assertions, respecting the culture of the potato, diametrically opposed to every principle ex-

hibited in the most able writings of Europeans. But as they are the results of more than twenty years' careful observation and experience, they will at any rate, I think, be likely to escape the epithet of rashness or error, which ought certainly to be carefully guarded against by every one who offers his sentiments to the public. But to return to our fine heavy loam, it must be remembered that although this is the proper soil here for the culture of the potato, it requires nevertheless a proper mode of cultivation, in order to insure a good crop. It must be well labored, moderately manured with horse dung or light compost; the potatos planted at a good distance, and the earth amongst them kept clear, free and lose, by frequent hoeing or plowing. The potatos for planting ought to be selected from the most approved sorts; as this too is an object of considerable importance. But without the quality of the soil is constantly attended to, the purest sorts will degenerate in one season. I once cultivated a piece of ground on the estate of Henry A. Coster, Esq. at Kip's Bay, on which I planted the same sort of potato for nine years successively, without ever changing the seed. A sufficient quantity of the proper shape and size were yearly selected for seed, and the whole seemed to improve rather than degenerate; the soil was about five feet deep, a very strong heavy loam. For seven years successively I have tried every means I could think of to obtain a good crop of good potatos from a dry sandy soil; two years out of which I had something like a very middling crop of tolerably good potatos. These were what might justly be stiled moist or rather wet seasons. The other five years were what might be emphatically termed dry, and the produce of one acre of heavy soil has frequently yielded me more in one season than the best acre of the sandy soil did, through all the five years put together; and what to many may appear most remarkable, the drier the season the more soft and watery was the produce of this sandy soil. In the culture of potatos on strong heavy soils, I never perceived them the least injured by wet seasons, except in spots where surface water stood, which ought carefully to be guarded against. Any deficiency too of the cultivator in bestowing the necessary labor on the soil, is naturally attended with a deficiency in the produce, as well as of the quality of the potatos; but in dry sandy soils, except in such wet seasons as but very seldom occur in this country, it is just as impossible to obtain a good crop of potatos as it would be to obtain a good crop of them in Britain, in the most wet and stubborn soils of that country. It is but of late years that the people of Britain have become acquainted with the most proper mode of cultivating this root; and in this country its cultivation as yet seems to have been attended with the same degree of carelessness and indifference that attended it for many years after its first introduction into Britain. One great detriment to the paramount establishment of an effectual improvement in the culture of any vegetable is, the confident and contradictory reports of partial experiments. The want, too, of properly organized associations for their able investigations and determination on such subjects, has, till of late years, greatly operated against our progression in all rural improvements. These associations however are now fast increasing and highly encouraged by our wise legislators; and there is every reason to hope that through their united energies and friendly intercourse, many important improvements will be gradually developed and supported, which otherwise might long remain in obscurity or neglect.—I have dwelt to a great length on the subject of our endeavoring to effect an essential improvement in our potato culture, in hopes that should these sentiments become known to any of our neighboring associations, they might receive from them that degree of consideration which the principles they advance, and the importance of the subject on which they treat, may appear to them to deserve.

[For the New-York Farmer and Horticultural Repository.]

ART. 47.—*The method of preserving Grapes, by dipping the stems in tar or wax, by* ALPHONSE LOUBAT.

MR. EDITOR—In my book on the cultivation of the Grape Vine, I have pointed out a way of preserving grapes fresh in the bunches; which is, by sealing the lower end of the stem, when just cut, with tar or sealing-wax. This process is not an invention of mine; it has been a long time in use, and is known to be an efficient one. But, Sir, does not common sense teach, that, in performing this operation, care should be taken not to expose the grapes too long to the smoke from the vessel that contains the boiling sealing wax, which must necessarily spoil the grapes intended to be preserved? I must therefore presume that the author of a letter in your journal, Art. 25, No. 1, has either been incorrect in his assertion, or very unfortunate in his management of the grapes which he intended preserving by the process pointed out by me. He complains bitterly because he did not succeed. But, Sir, could I not with propriety, and without incurring censure, recommend taking off a grease spot from cloth, by means of a hot iron, a process equally well known? Suppose, then, that the person using this method should, through awkwardness or accident, burn his cloth; would I be to blame for having advised the remedy? The same reasoning is applicable to the grapes in question. Because a gentleman, employing the process recommended by me for preserving grapes in the bunch, pleases to smoke them like bacon, it does not follow that the process recommended is not a good

one. In requesting you to insert these few lines in your journal, I shall only add that the greatest fault of the Vine Dresser's Guide consists in its having on its cover a notice by which grape vine roots, of a better quality than those heretofore sold at $1 each, I now offer at 12 1-2 cents. This, Sir, is the real and only cause of the attacks of which I have been the object; for the method recommended by me, is that which has been practised for ages, in countries where the vine is cultivated, and the management of every thing relating to it, best understood.

ALPHONSE LOUBAT,
85 *Wall-street.*

New-York, Feb. 29, 1828.

ART. 48.—*Grape Vines—extracted from* WILSON'S *Economy of the Kitchen Garden, Orchard, and Vinery, just published by Anderson, Davis, & Co. No.* 181 *Chatham-square, New-York.*

The Grape Vine is a native of the United States, and several varieties of it are found growing in great luxuriance throughout all the forests in the southern, middle, and most of the northern states. None of them have been considered as possessing qualities proper for good wine; and the only variety that has been much cultivated for the table is called the Isabella, a fruit of very inferior qualities to those kinds cultivated in Europe, but which from its easy culture and great productiveness is held in considerable estimation. And it may be raised to great perfection in all soils or situations, for no place seems to come amiss to it. The cultivation of those superior kinds imported from Europe is more precarious. Nor has there as yet been sufficient evidences from well-timed experiments to enable us to form any correct judgment how far their cultivation in vineyards, for the purpose of making wine, might be attended with profitable success. Men, anxious to promote the cultivation of particular plants, are fond of catching at every favorable symptom of success, and often venture upon precipitate calculations that disappoint both themselves and those who follow their example. That there are particular situations in this country, where the finest table and wine grapes succeed, has long been well known, and of which the numbers of fine plants in various gardens about the city are living evidences. But these grow in well sheltered situations, and are generally trained upon high trellises or arbors, by which the bearing wood and fruit are elevated much higher from the ground than could well be effected in a vineyard. It is true, instances are frequently found of tolerable good crops of grapes being produced in the country from vines trained to stakes in the general form of vineyard culture. But it is equally well known that notwithstanding the greatest care on the part of the cultivator, his whole crop is often ruined by mildew. And the innumerable swarms of insects that attack them at other times, seldom leave a sound berry upon a bunch.—These statements of facts we have considered it our duty to lay before our reader, by no means to deter him from entering upon the cultivation of the grape vine, but to enable him to be prepared for encountering such obstacles; and, if possible, to adopt some method in their management that may diminish or overcome them, in such a degree as may render the cultivation of the plants less precarious; and that their produce may be rendered so secure that reasonable grounds may be attained for calculating upon it as something like an ordinarily sure crop. Some sorts too, are more hardy and less liable to accidents than others. Our native grapes are seldom affected by those disasters that prove so detrimental to the imported sorts; and time and experience may yet discover amongst these, some sorts that may assimilate to those which are indigenous. Scions from the imported sorts grafted upon our native kind grow freely, and by this means much improvement may be effected. New sorts too might be raised from seed by impregnating the gum of the one sort with the pollen of the other. In fact a wide field lies open for the ingenious cultivator to exercise his skill in making improvements in the management of the grape vine. Various situations too, in the country, might be selected for their culture, perhaps more favorable for their success than any yet tried.—The finely exposed and well sheltered situations on elevated slopes of our lofty mountains, offer apparently far more favorable sites for vineyards than our champaign country. And in such places they might escape the mildew, and the millions of insects that swarm in lower grounds. The soil on our elevated ground, too, is most congenial for the grape; and it could be prevented from washing away, after being loosened with culture, by forming it into terraces. In some countries the vine is raised under glass, in buildings erected for the purpose, called vineries, generally about ten or twelve feet in width, fronting to the south, and of various lengths; the back well built with brick or stone, about twelve feet high, and the front about four feet, from which glazed sashes are made to slide up and down upon the rafters the whole size of the roof; the front wall is built two feet high, (the other two feet glazed sashes,) with arches at the foundation to admit the vines, which are planted in the best of soil on the outside. And by means of fire heat, introduced by a flue built in the inside, the temperature of the air is kept at any degree of heat the cultivator pleases. And by this means fine grapes may be raised in any country. There are only two methods generally practised for raising them in this country, on trellises and arbors, and by the support of stakes, as in most vineyards.—

The former is much practised about towns, and with which we shall commence our directions on the best mode of training. But in the first place it will be necessary to say something about the preparation of the ground to receive the plants; for unless it be put in good order, it cannot be expected that the vines will thrive. Therefore, whenever vines are to be planted, the ground should be trenched to the depth of two full spades at least, and to as great an extent on each side of the place where the plants are to be set as the situation will admit of. If the whole garden can be thus trenched, so much the better. And in performing the trenching a good supply of short dung should be well incorporated with the soil, which, if poor, should have the thickness of one foot of horse and cow dung laid all over it, and mixed in it in the trenching. This should always be done, if possible, the fall before planting; and by being well turned over with the spade early in the spring, would be in fine order for receiving the plants. Great care should be taken in removing these plants, never to suffer their roots or small fibres to be exposed to the air so as to become dry. And the hole to receive them should be made sufficiently large to admit them freely at their full length, and should all be placed as nearly as possible about the same depth below the surface as they were before they were taken up. No plant is easier to train, or looks better on a trellis or arbor, than the grape vine. And we would recommend either of the following modes. The first is calculated for a scale, where the plant is to cover a space eight feet in width, and of any height from eight feet to eighteen or more.

No. 1, on the plate, is a representation of the plant when set out, of one year's growth from the cutting, and is to be cut off to one good bud, as at *a*. The lower bud is seldom counted, and only the upper bud is to be allowed to produce one shoot; the young buds on this shoot will many of them shoot out in the course of the summer, which should be pinched off.

No. 2 represents the plant of one strong shoot, one year after being planted, and it is to be cut down to two good buds, as at *b*, about fifteen or eighteen inches high from the ground. The shoots from these two buds are to be trained to a trellis horizontally to a distance of four feet, and then their ends pinched off, as we intend the plant to fill a space in width of eight feet.

No. 3 represents the plant two years after setting out, with the two last years' horizontal shoots, as they must be cut into three good buds. The two buds next to the stem are to be allowed to shoot and grow upright as high as they please, to be tied up to the trellis, and the end buds to be trained horizontally to the limits of three or four feet distance, and again pinched off.

No. 4 represents the plant three years from setting out, with its two last years' upright shoots, as they must be cut down to four good buds, which are this year to be allowed to bear fruit. And the horizontal branches cut into three good buds, their shoots are all to be trained upright, which will complete the head of your vine, with eight branches at about one foot apart.

No. 5 represents the vine four years after setting out, with the two centre branches that bore fruit last year, as they must be cut down near to their origin.—The two next cut down to four buds for bearing fruit. The next two to one good bud, for producing one good wood shoot. The next, and last two, to three buds, for bearing fruit. Its regular culture afterwards is to cut four of the branches low down, and to leave four longer to bear fruit alternately, always allowing the branches that bear fruit the one year to be cut down for recovering a good shoot again for bearing the next.—The other mode of training is called horizontal training, but may be extended to any height or distance you please, so long as you retain the leading shoot, or it may be confined to a very low space by cutting it off.

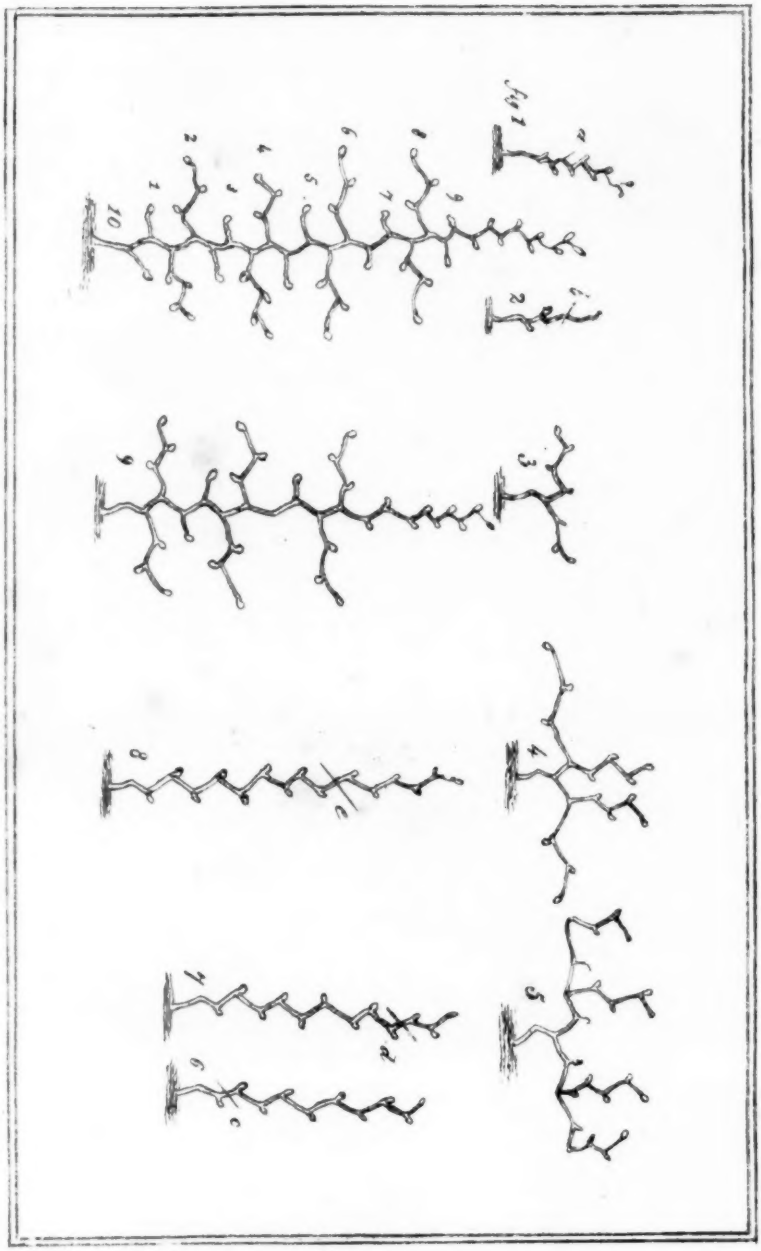
No. 6 represents the plant when set out, the same age as the other; to be cut also to one good bud as at *c*. This bud to be allowed to produce one good shoot.

No. 7 represents the plant one year after setting out, to be cut down to three good buds, as at *d*. The shoot from the upper one of which is to be trained upright, and the two lower ones are to be trained horizontally.

No. 8 represents the plant two years from setting out. The leading shoot of which is to be cut down to nine buds, as at *e*. The upper bud to be allowed to shoot upright, and all the others horizontally, four feet from each side. The two last years' horizontal ones cut as they must be to one good bud, its shoots to be trained as it was last year.

No. 9 represents the plant three years after setting out, with its branches cut as they must be. The two lower ones to three good buds for bearing fruit. The next two cut to one good bud for wood. The next two, to three for fruit. The next two, to one. The other two to three, and the leading one again to nine. The upper bud to have its shoots continue upright, the other eight horizontally.

No. 10 represents the plant four years from setting out, with its branches cut as they must be. The lower two to one good bud; the second two to three buds; the third two to one; the fourth two to three; the fifth two to one; the sixth two to three; the seventh two to one; the eighth two to three; the ninth two to one; and the leading shoot to nine buds. All to be managed in the same way as those of last year. And in this way you may continue your plant as far as there is room; when that is terminated, cut off your leading shoot, and regulate all the horizontal branches so that they may



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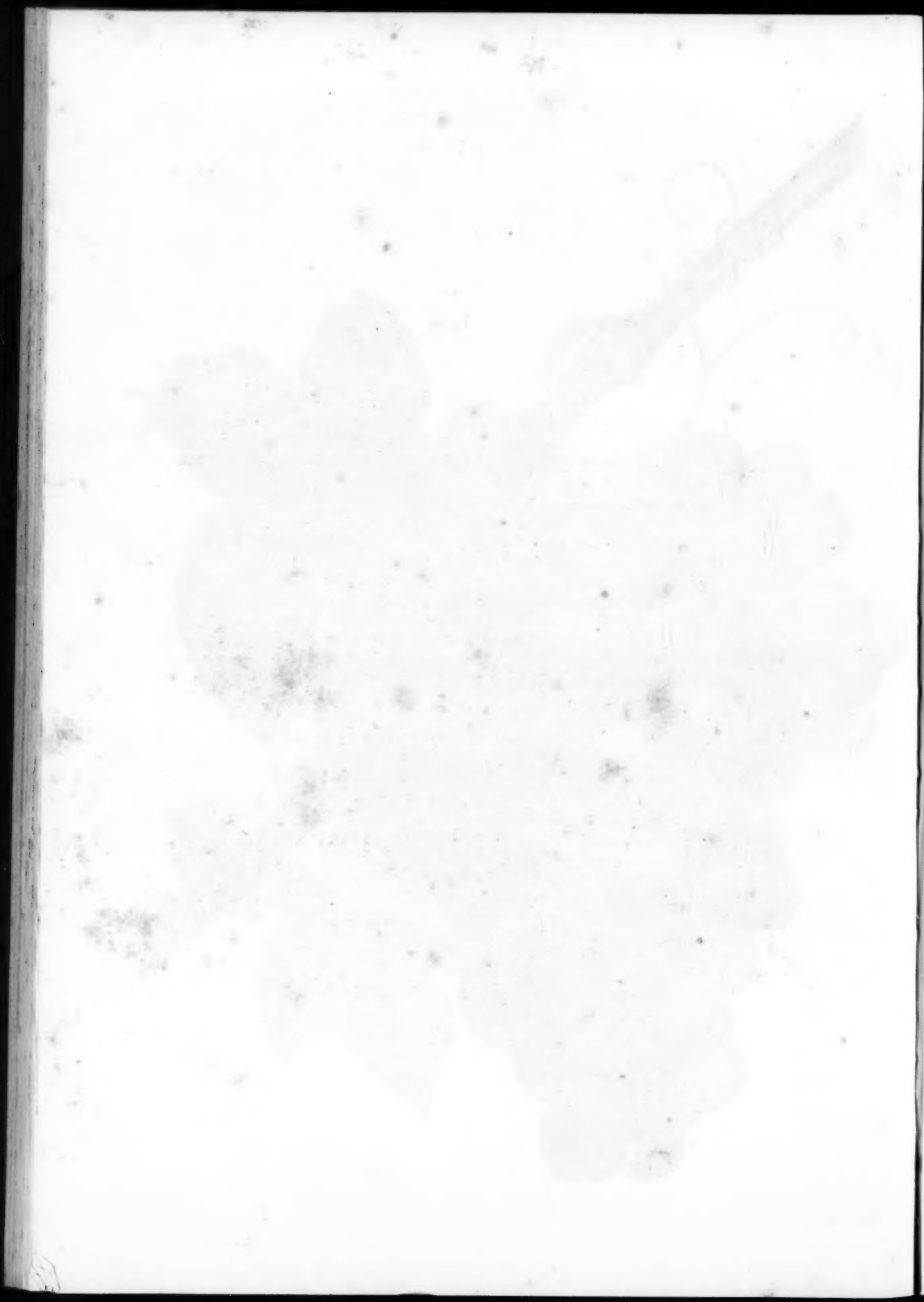

bear fruit and wood alternately to the end of the grape vine's existence.

It may be necessary to observe, that in the first mode described for training the vine, the two horizontal branches or arms to support the upright shoots, are intended to extend four feet from each side of the main stem; and on each of them are to be selected four upright branches, which will make them about a foot apart. It will be necessary to rub off any intermediate buds, so as to regulate them, to be placed at proportionate distances. And after they are once cut down to one bud, the next year's cutting down would be a joint higher, and this may be safely allowed for a year or two; but whenever they get too far above the arms, by cutting down to the lowermost new bud, they must be cut down on the old wood near to their origin, and only one good shoot allowed to grow; any other bud to be rubbed off. And the same rule must be observed in cutting in all the branches of those trained altogether on the horizontal plan. And in directing nine buds to be left on the leading shoot, it is only intended in case the plant be very strong and vigorous; should it not be so, it would be better to cut it to five, or even three buds, in which case there would only be one or two branches to be trained horizontally on each side, instead of four as exhibited on the plate; and the choice of these numbers should always be regulated by the cultivator according to the actual strength and condition of his vine. And the same discretion is to be exercised in leaving the number of buds on the bearing branches, from three or four to double that number when his vine is strong. But the mode of cutting them in after bearing one year, and the continuation of their regular number and distances are seldom or never to be altered. Every bud of those left for bearing sends out young shoots that produce the fruit, and these must all be neatly tied up to the trellis; but all lateral shoots from the other constantly rubbed off. Perhaps no plant bears the knife better than the grape vine, nor can there be any thing more simple, easy, or entertaining than the training of it, according to those principles which we have endeavored so plainly to describe. Those vines trained over arbors have their heads generally formed higher, but the principle of training all their parts so as to be regularly supplied with fruit and wood-bearing branches, is precisely the same as those described above. The great error that most unexperienced cultivators fall into, is their neglecting to cut down, in time, into the old wood, or their regularly selected branches; and suffering laterals to extend from all parts of their vine, they soon let it run into the wildest confusion. In all such cases the only remedy generally is to cut off the whole concern, to that proper position upon the old wood where the head ought to be formed, and regulate the whole anew. In the vineyard culture they are generally set out in rows ranging from north to south, six feet apart, and the same distance from plant to plant, in the row. The vine is managed the two first years, the same as directed above. The third year it should be cut to four good buds, to produce four shoots, two of which should be tied to one stake, at one side of the vine, and two to another stake, placed on the other side of the vine. The next or fourth year after setting out, two of the strongest shoots, one from each side of the main stem, should be cut down to three or four buds for bearing fruit; one of the others to one bud, and the other one to two, which may both be allowed to grow. This will increase the shoots to five; and every year after, one of these, whose turn it is to be cut down, may be allowed to produce two shoots, until the first four all produce two; which will make the head of your vine to contain eight branches, beyond which number they should not be increased. When the soil or plants are not in the best of order, six, or perhaps the original four standard branches will be the most proper number to be retained. The discretion of the cultivator will be at no loss to determine this. As the standard branches are increased, so ought the number of stakes to be; so that no more than two branches may be tied to one stake. The first two stakes should be placed the one on the north and the other on the south side of the vine. The other two, when wanted, the first on the east side, and the last upon the west side. The height of the stakes should be about seven feet above ground, and fifteen or eighteen inches inserted into it, at least twelve or fifteen inches distant from the main stem. When the tops of any of the branches extend a little over the head of the stakes, they should be pinched off, as well as all lateral shoots, which, if suffered to grow, would only tend to weaken the select standard number. As to the preparation and culture of the soil of the vineyard, it ought to be the same as directed for the peach orchard. And the most proper season for performing the main pruning is either the month of November or February. The following sorts have been found to succeed tolerably well in this country:

GRAPE VINES.

1. Millen Burgundy	7. Black Hamburgh
2. Golden Chasselas	8. Tokay
3. White do.	9. Blue Cartiga
4. " Sweet Water	10. Muscat Violet
5. " Muscadine	11. Messlier
6. Morillon Blanc	12. Austrian Muscadell

REMARK.—As a general rule, it may with safety be asserted, that the Farmers of the United States, are yet to learn the immense productive power of a perfectly cultivated acre.

[For the New-York Farmer and Horticultural Repository.]

ART. 49.—*Olla Podrida. Communicated by* J. Buel, *Esq. of Albany.*

Potatos.—The Chevalier Payen, has lately published an 8vo. *Treatise on the Potato.* He enumerates twenty-nine uses to which this plant may be applied. Among the uses not generally known, it is stated, that after being frozen, they may be made into starch or distilled into spirits. With one third part of flour they may be made into bread. With the flour of potatos, pastry, vermicelli, rice and tapioca may be made.—With stucco they form an improved plaster. They form a wash on their plaster for buildings, which may be colored with ochre, soot, &c. Roasted brown and burnt, they make a very good coffee. Crushed, they are employed in whitening linen and other cloth. The water expressed from them is a rapid promoter of the germination of seeds. The fecula, with sulphuric acid, is converted into syrup, from which moist sugar is made. Mixed with soot, &c. this syrup makes an admirable blacking. The water of the young tubers affords a grey, and the blossoms furnish a beautiful yellow die, &c.

Scotch exports.—At a dinner of the Caledonian Horticultural Society, in September, the Earl of Roxbury presiding, the following was given as a leading toast: "The staple exports of Scotland, Gardeners, Doctors and [other] Black Cattle."—*Cal. Mer. Sept.* 8.

Thrice blooming Apple.—In the 6th vol. of the London Horticultural transactions, is a communication from M. Thouin, giving an account of the *Calville Rouge de Micoud,* an apple which affords three sets of blossoms and fruit in a season. The blossoms appear in April, June and August. The first crop of fruit ripens in August; the second crop immediately succeeds, and lasts till the last of October; the third are picked after frost, and ripen in the fruit room.

Harvesting Grain.—Professor Schoen, of Germany, says, "every description of bread-corn, when intended for seed, should attain complete maturity before it is reaped; but on the contrary, when corn is to be converted into flour, *it should be cut eight or nine days before it be fully ripe.* Experience, says he, has proved, that such grains as from maturity detach themselves from the ears, always produce the finest plants, from being larger and more perfect in their conformation. The proper time for reaping corn destined for the mill, is when the grains being pressed between the fingers, yield to it, and become a viscous mass." In some parts of Bohemia and Hungary, this practice has been kept a profound secret, because the flour so obtained was very much sought after, and always brought a higher price than the best flour from ripe corn.

Chili native Potato.—I received three tubers of those brought by Com. Hull, from the late Gov. Clinton, in Feb. 1827, which I placed in a pot in the green house. One of them grew and gave blossoms. On examining the pot in autumn, I found that no new tubers had been formed, but that the old tuber was increased three fold in size. Sprouts having started, I have put it again in a pot, and design to place it in the open ground as early as the season will permit.

Strawberries.—In 1825 I received twelve varieties from the London Horticultural Society, eight of which grew. The *Downton,* a new variety produced by Knight, by artificial crossing, yielded some berries measuring 4 3-4 inches in circumference. The Methaven Scarlet, several of which measured 4 inches. They are both good bearers.

Potatos for Seed.—It seems to be a received opinion among the horticulturists of Great Britain, that Professor Schoen's rule as to grain, should be reversed in regard to this root—that *these must be gathered in an unripe state for seed, and fully matured for the table.* It also appears from numerous experiments, that the upper or seed end of the tuber will produce roots a fortnight earlier than the lower end, connected with the runner. From the same variety of seed four successive crops may be obtained, at intervals of two weeks, the seed being planted at the same time and on similar soil, viz: the first from the upper set of the unripe seed; the second from the bottom set of the same; the third from the top end of the ripe seed; and the fourth from the bottom set of the same.

To destroy Weevil among Grain.—Lay fleeces of wool, which have not been scoured, on the grain; the oily matter attracts insects among the wool, where they soon die—from what cause is not exactly known. M. Payandeau related to the Philomathic Society that his father had made the discovery in 1811, and had practised it on a large scale since.—*Bull. des Science Agricoles, Juill.* 26, 1826, *p.* 24.

Agricultural Schools, are formed every year in almost every part of continental Europe. In Bavaria, the King has recently founded an institute for extending a theoretical and practical knowledge of Agriculture. The institute is divided into three classes, in each of which the number of pupils is fixed, and the institution public and gratuitous. In the first class, a knowledge of agricultural labor, of the most approved methods in use, and of the management of the different agricultural implements, &c. is inculcated. In order to be admitted into this class, the pupils must have a healthy constitution, adapted to agricultural labor, such elementary knowledge as is usually acquired at country schools, and be at least sixteen years of age. In the second class, theory and practice are united; the labors of the pupils are directed by experimental professors, and a knowledge of botany, zoology, and natural philosophy, in as far as those sciences are connected with agriculture, inculcated. The third class is intended to form agriculturists, who may eventually

aid in extending the boundaries of science, and is limited to those who have attended the second class.—*G. Mag. Oct.* 1826.

There are, to speak within bounds, fifty schools on the continent of Europe, established by the privileged classes, to teach the theory and practice of agriculture, and within the last thirty years. How many have we in America? If "knowledge is power," how important is it that a republican people should keep pace with monarchies in diffusing it. Are we to lag half a century behind other nations in those improvements which are essential to our comfort, our prosperity and our power?

By request we insert the following article, taken from the Memoirs of the Board of Agriculture of New-York. The conclusions drawn from the result of the experiments are important, and evince a habit of observation on the part of the writer, highly worthy the imitation of farmers.

ART. 50.—*Remarks on the destruction of the Canada Thistle. By* MARTIN E. WINCHELL, *of Dutchess county, N. Y.*

This, of all noxious weeds, is the most pernicious and destructive to the agricultural interests of the state, at least so far as my observation has extended; and unless some prompt and efficient measures be speedily taken by the legislature, the agricultural societies and the farmers, for its destruction, this and the adjoining states will shortly be wholly overspread with this most troublesome weed. It needs but a mere enumeration of its various mischiefs, to deprecate it as one of the most serious evils that could threaten our country.

1. The Canada thistle, where it generally prevails, is a great obstruction to the growth of grass on pasture and meadow lands.

2. Its roots and stalks retard the growth of all kinds of winter and summer grain.

3. It is very troublesome to laborers in *gathering* all kinds of grain.

4. Its prickles are pernicious things in wool.

5. If the Canada thistle be not arrested in its progress over our country, the time is not far distant when our fertile fields, our pleasant walks and court-yards, will be infested with this unpleasant and intolerable weed.

6. The value of our soil will be reduced probably one third or one half.

As my farm is somewhat infested with the Canada thistle, I shall,

I. Give a description of the plant.

II. Of its progress.

III. Of various experiments for its extermination, which had no effect.

IV. Of experiments which terminated successfully.

V. State my theory for exterminating the Canada thistle, corroborated by facts and observations on the destruction of other plants and vegetables.

I. *Description of the plant.*—The root of the Canada thistle penetrates to the depth of 6 to 30 inches in the ground; and at the depth of 5 to 7 inches, spreads horizontally in different directions, and in numerous branches; which horizontal branches, once in 5 or six inches are set with eyes. These eyes are ready to start up at any time, and usually spring up the second season, supported not only by perpendicular roots of their own, but by the main horizontal root and various small fibres. Thus the roots increase and spread, till the ground is filled with them. The stalk of the plant is single, straight and erect, and sends out several branches from the main stalk towards the top, rising to the height of 14 to 36 inches, according to the richness or poverty of the soil. Size of the stalk at the surface of the ground, from the size of a pipe stem to that of a man's little finger, thick set with long, narrow, scalloped leaves; the leaves and stalk very full of sharp prickles; seed-burs on the top of several of the branches, of the bigness of a woman's sewing thimble; blows purple. The stalk dies in the fall, and from the roots others spring up in the spring. The stalk is hollow to the extent of 4 or 6 inches near the ground.

II. *Of its progress.*—It seems to be the prevalent opinion among the farmers in this part of the country, that the Canada thistle will not produce seed in our climate. Indeed I have never seen any myself. Be that as it may, there are various ways by which the thistle seeds may be transported or conveyed from sections where they come to maturity, to any part of our country. To say nothing of birds of passage, they may be disseminated,

1. By sheep, the burs adhering to their wool.

2. By droves of cattle or horses, as it is well known that seeds will germinate after passing through these animals.

3. By the light downy substance to which the seeds adhere, and may be scattered to great distances by winds. Twenty-four or forty-eight hours of strong north wind might bring the seeds from Vermont or Canada to Dutchess county.

4. By spring wheat or rye from the north, where the thistle prevails.

5. By grass seeds, particularly clover and timothy, which have been gathered where the thistle grows, and which has probably been the principal means by which the Canda thistle has been introduced into this and other northern states.

The first appearance of this thistle on my farm, (which is a moist loam, and situated in Northeast,

Dutchess county) was in 1809 or 10, in two small patches, not covering a surface of more than two yards square each. And had I been as well acquainted with the plant at that time as I now am, I could have destroyed it with a trifling expense. But not being acquainted with its bad effects, I neglected it until it had spread to the extent of a quarter of an acre in each patch; and new patches began to appear in several places on my farm. I discontinued to till the ground where the thistles grew, and not being able to obtain any information how to destroy them, I did nothing more than to mow them off for several years. But according to the best of my calculation, they *spread from the roots* at the rate of about four feet a year in every direction. Thus it appears, that the Canada thistle spreads or progresses from the root, if in no other way.

III. *Experiments which had no effect.*—The thistles now assumed so threatening an aspect, that I was resolved to make some experiments for their extermination. I covered one patch with straw, three feet thick; salted my cattle and sheep on another patch two or three years; covered another patch with a thick layer of cider pomace: all this was of no use towards destroying the thistles. They continued to spread from the roots, and eventually grew more thick and rank.

IV. *Experiments which terminated successfully.*—I now became alarmed; and recollecting, that when I was a boy, I destroyed a patch of *cucumbers* by putting on them *strong salt brine* as a manure, and which also destroyed all vegetation on that spot for that season, I was determined to try the brine on the thistles. I applied it on a small patch of a rod of ground, in June, 1817: the next year but *three stalks appeared.* I applied the brine again in June, 1818; since which time none have appeared in that place—a space of three years. Being encouraged with this success, I applied the brine to several other patches, which produced the same effect as in the preceding case. In this way I proceeded in the use of brine till I had destroyed several patches, which collectively would probably cover about half an acre of ground; in which experiments I used about 25 bushels of salt. Preparatory to the application of the brine, with a mattock or hoe I made a hole in the surface of the ground, cutting off the thistle or cluster of thistles, which would hold about three gills of brine. The brine should be applied in dry, fair weather; for if the ground be very moist, or if the application of the brine be immediately followed by a heavy fall of rain, it will be so reduced as not to produce the desired effect.

Although I was fully satisfied that strong salt brine, applied as before described, would destroy the thistles principally the first year, and the residue the second year, yet it evidently was attended with considerable expense. I resolved, therefore, early in the spring of 1823, to put *three new experiments* into operation for the season, on three separate patches.

1. I selected one patch of about three quarters of an acre, situated in an orchard, (sward land;) as soon as the thistles appeared, I *ploughed it over*, which was about the first of June; and continued to plough the patch once in about two weeks, until the middle of September following. The result is, that very few have appeared this season, 1824, and those principally near the bodies of the trees where the land could not be ploughed. From this experiment, I am fully satisfied *that two years ploughing, once in two weeks, from the 1st of June to the 1st of October, (where the ground is susceptible of being all ploughed,) will completely eradicate the Canada thistle.* Let half of the ploughing be *deep*. It would, no doubt, be of material use, to harrow over the ground with a thick-set iron tooth harrow, immediately after the ploughing; which would haul up the roots to the sun, when they must inevitably die.

2. Another patch of about three-fourths of an acre, (sward land) I inclosed with a fence, and as soon as the thistles appeared, and while yet tender, and the prickles not yet sharp, I put in 150 sheep twenty-four hours, and in one instance, forty-eight hours before they had bitten them off close to the ground.—And as often as they were grown up an inch or an inch and a half, I turned in the sheep, which soon devoured them. This I continued till about the 30th June, when, from the pressure of business, they were neglected until they were so large and prickly that the sheep would not eat them. To be defeated in my purpose to prevent them from having any tops or foliage one season, I did not like to submit to. Accordingly, on the morning of July 8th, 1823, (at which time the sun was also eclipsed,) I proceeded with 6 hands and hoes, and with the point of the hoe, cut off the thistles as above described; since which time there has not one appeared in the whole patch. I have no doubt that they are completely subdued. The phenomenon I leave for abler minds to solve, whether the continual destruction of the foliage, or the cutting them off at the eclipse of the sun, was the cause of their extermination. It is my opinion, however, that the former was the cause of their death.*

3. A third patch of about 16 rods of ground, I completely covered over with *boards* and the *barks* of trees, in June, 1820. I have examined the roots of the

* It seems to be well settled by physiologists that the *ascending* sap does no more nourish plants, than *undigested* food does animals; that the *leaves* are as necessary to convert the sap into aliment for the plant, as the *stomach* and *lungs* are to convert food into nourishment for the animal; and hence, that plants robbed of all their leaves will cease to grow, and if the defoliation is once or twice repeated, must soon cease to live.—*Editor Memoirs.*

thistles under the boards, in several places, and found them black and decayed. I dug to the depth of 18 inches. The boards and barks had lain over them only 14 months.

V. *Theory.* The result of my experiments, observations and reflections on the destruction of the Canada thistle, as described in the preceding remarks, has brought me to this conclusion and theory: *that by whatever means the foliage (or leaves and stalk) of the plant are continually and frequently destroyed for one season, or two at most, during the months of June, July, August and September, will destroy the Canada thistle.*

This conclusion is supported by facts and observations which I have witnessed and made on the destruction of other vegetables; and which are as follow:

1. The common meadow brakes, (or fern) which grow on moist, loamy upland, and which infest meadows, are seldom, if ever seen growing along the high way, while the adjoining meadows will be thick set with them. The absence of fern from the highway must be ascribed to the fact that they are constantly bitten off by hungry cattle and sheep, as are all other vegetables not loathsome to these animals, and die. In one of my meadows, adjacent to a swamp pasture, about an acre of ground was overrun with the fern and other weeds, not offensive to cattle, and which obstructed the growth of grass. I moved the fence, and included the brakes within the pasture lot. Two years' feeding entirely subdued the brakes and other weeds, and a luxuriant crop of excellent grass succeeded them.

2. I have on my farm about four acres of low, moist grass land, which, to my personal knowledge, has been occupied as meadow, and mowed for forty years; on which had grown an abundance of the meadow willows, and which were usually mowed off every year. About six years since, I devoted the land to pasturage. The willows were wholly subdued by the cattle constantly browsing off the leaves the first year. *Not a single one produced leaves the next year.*

3. One of my neighbors, in 1821, planted eight or ten young English cherry-trees, all of which grew very thriftily for two years. Last season, the trees were constantly covered with worms, during the months of June, July and August. The worms devoured the principal part of the leaves; and the consequence is, that but one has produced leaves this season. *They are dead.*

4. About one and a half miles from my residence, about 15 years since, there were two rows of cherry-trees of the common kind, on each side of the highway. The sprouts from the roots had sprung up to some height, (the fields having been tilled for five or six years until last season) when one of the fields was summer fallowed, after rye-stubble, and consequently close pastured by sheep, and all the foliage contunually cropped off from the young cherry-trees. The consequence is, that *very few of them are alive this season*, while on the other side of the highway, where the field was planted to corn, and not pastured, the young trees are flourishing.

5. About twenty-five years since, there was an innumerable number of small green worms, (an inch long) which infested the forests where I live, more particularly the white oak trees, the leaves of many of which were entirely devoured, during the months of June and July; in consequence of which, *many of the trees died.*

It may not be amiss to remark here, that it is not sufficient merely to keep the tops of the thistles *partly* or *partially* subdued; nor yet enough to prevent them from blossoming and going to seed, by *cutting them off once or twice a year*, lest they should propagate from the seed. *Nothing short of thorough and constant destruction of the tops, can either subdue them or prevent them from spreading from the roots*, as above related. There is a great variety of vegetables which germinate from the seed yearly, come to maturity the same season and die. Others sprout from the seed one year, retain their foliage in some degree on the surface of the ground during winter, and the *next* season come to maturity, produce seed and die; some of which are, the tall, hollow thistle, with one erect stalk; the common field thistle, that sends out many branches; the mullen; the scabish, and many others, which, if they were prevented from producing seed for two years, and there were no dormant seeds in the ground, nor ingress of seed from abroad, would be exterminated. *Not so the Canada thistle.* Its root, as before remarked, is bedded deep in the ground, and from a great depth sprouts will arise every year from the eyes that exist in the roots; and, unless wholly suffocated, or deprived of all circulation, is not only incapable of being subdued, but will spread with great rapidity.

[For the New-York Farmer and Horticultural Repository.]

ART. 51.—*On the cultivation of Carrots, Beets, and Parsnips. By* Wm. Curr, *Gardener, New-York.*

To insure a good crop of any of these roots, it will be requisite to be provided with a sufficient quantity of well fermented heavy manure, which may be laid on the ground two inches thick, and broken small with the hoe. The ground should be deep dug and the manure well mixed with the soil. This work, where the soil is light and dry, I would prefer having done in autumn, so that the manure might have time to be incorporated with the soil; and in the spring the ground should be dug over again. Parsnips and carrots may be sown as soon as the ground is fit to work in spring, but beets are more tender and are easily killed with frost when young. For carrots and beets, the drills should be drawn at the distance of 12 inches from each other, and 16 inches between the 5th and 6th drills; which will throw

them into beds of 5 drills. This is a great advantage in cleaning, as the 16 inch space serves the purpose of an alley, and keeps the beds more open and loose.—The seeds of beets should be dropped into the drill at the distance of 3 inches, seed from seed, as the beet seed sends up several plants from each seed; and by having them dropped at that distance a great deal of labor is saved in thinning, and the plant has a better chance to advance from the beginning. Carrots ought not to be sown too thick; it will therefore be requisite to rub the seed well between the hands to take off the beardedness which is attached to the seed; this will make the seeds adhere less to each other, so that it may be sown more regularly along the drill. When the plants of beets or carrots have put out four or five leaves, they should be thinned out to the distance of six inches, plant from plant; the beds should be kept clean by frequent hoeings, till the plants cover the ground, when the seeds will be effectually kept down by the crop.

Parsnips should have 16 inches between the drills, and an alley of 20 inches between every four drills; they should be thinned out to 6 or 7 inches, plant from plant; when the vines are very luxuriant, they should be broken down either by trampling them with the feet, or by drawing a roller over them; this process takes but very little trouble, and is of great service to the swelling of the roots. In the keeping of these roots through winter, great care should be taken to have them dry, that is, in a dry place. Parsnips will stand the winter where they grow; so that those for spring use may be suffered to remain till wanted for the table.

Carrots and beets may be laid in a pit three feet deep and two and a half wide, and covered with two feet of earth, well beat with the spade to send off the water. Parsnips should be laid into the pit with a layer of earth or sand between each layer of roots, which will keep them well colored and free from rust, which they are very subject to when laid up without having earth between them. In planting out any of these roots for seed, the most genuine roots are to be selected; they should be planted up to their necks in the ground, at the distance of three and a half feet; when they send up their flower stems a stake should be put down beside each plant, to tie them to; and it may be requisite to run cross bars between the stakes, especially for beets, which should be well tied up. When the seed begins to ripen they should be looked over, and the ripe seed taken off, which may be easily known by the change which takes place in the color. Carrots change from a light green to a brown; and beets get likewise of a brownish color. Parsnips get to a light yellow, and will lose their seed with the first wind after its arrival at maturity. The seed first taken off should be kept by itself, as the earliest on the plant is generally of a superior quality to the later produced part of the seed. The seed when taken up should be hung or laid in an airy room or loft, till it is perfectly dry; it should then be rubbed out and put in boxes or bags, and kept till wanted.

WM. CURR.

[For the New-York Farmer and Horticultural Repository.]

ART. 52.—*Sketch of the Rise and Progress of the New-York Horticultural Society. By a Member of the Society.* [*Continued from page* 3.]

The object of our present undertaking is not to excite expectations in the minds of our fellow-citizens, that will never be realized concerning this institution. Nor do we wish to represent it in its origin or in its present prosperous state, as a paradise where we may pamper the vanity and aggrandize the names of a few individuals. No, the New-York Horticultural Society commenced its career in the dust. But the patrons of their country perceived, and in their breasts they approved its feeble but faithful efforts, which, as they gradually developed, were countenanced and encouraged by many of the most eminent men in the state, from the governor down to the humble laborer of the field. And if the circumstance of some of the greatest and best men of antiquity having retired to rural employments, be recorded with the highest marks of praise by their historians, ought the kind and fostering care of the late Hon. De Witt Clinton ever to be forgotten? who, although clothed with all the honor and dignity of the chief magistracy of the state, was often to be found cheerfully associated with numbers of the practical members of this society, at the houses of some of the most respectable families in this city; families to whom the successful progress of this society is much indebted, and whose names ought to be particularly recorded on the pages of the history of this institution. The eminent services rendered to the society by the late worthy Martin Hoffman, Esq. have already been noticed; but the condescension of his amiable family frequently admitted the practical gardeners to enjoy those inestimable benefits that are to be derived from being admitted into the most worthy and respectable circle of society. The writer of this would not have entered into these minute details but for the fact of their having taken their rise through the means of Mr. Hoffman's desire to encourage and promote the advancement of this society. Nor shall he ever forget the scene when in this good and great man's house he beheld associated, by particular appointment, a De Witt Clinton, a Hosack, a Mitchill, a Murray, and men who at their daily avocations mingled the sweat of their brow with the soil they cultivated.—Tenderly may the hands of all those gardeners that were present, on that occasion at least, touch the earth, on their commencement of this spring's labors. Although at some distance from the immediate spot where

their spades may first disturb the ground, can they forget the depositories of those dear remains, so recently entombed below; or will they not bend their manly knees upon the weeping soil, and for a few moments, at least, hold a humble converse with the grave? The pen of the learned, and the strain of the poet, will mark the never fading character of the great. But no American that ever breaks the soil ought to forget, to the end of time, that the ashes of a Washington, a Clinton, and a Hoffman, lie beneath. And here we must leave them all to rest, while we proceed to survey some of the other sources from which our society has from its commencement derived so much of its support.

He who now presides at the head of our association, beheld us with a paternal solicitude for our prosperity, from our earliest days, and like a hidden fountain in a rock, supplied a vital stream from which the first practical founders of the institution were freely permitted to drink, with a liberality that few of the succeeding members of the society have ever as yet been aware of. And it is a credit due to Dr. Hosack, to state, that the first practical founders of this society took their encouragement from him, and obtained the most useful and valuable literary information at his house; not only were they permitted, at any time, to the perusal of every work, that could be of use to them, in his extensive library, but even the knowledge was kindly extended to them, of associating freely with a circle of the most learned and scientific men of the age, who met weekly under his hospitable roof—men who thought it no wise derogatory to their exalted stations in society to shed a lustre over the minds of the humble gardeners, which, it is hoped, will increase in brightness while the process of vegetation continues to decorate the earth. This was truly laying a foundation for horticultural improvements, that but few great men would have stooped to, and was performed at a stage of the society's existence when his name was not openly recorded as a member thereof; and when he publicly did enter the list of its supporters, being well convinced of the great merits of those worthy men that had led the van, with his well trained band he showed the benevolence of pure philanthropy, and like many other worthy men in the association, commenced in no other character than that of an ordinary member. Nor was it until the unanimous solicitations of the society urged upon him to accept the presidency, that his name received any mark of distinction, notwithstanding the invaluable contributions for our advancement, that had long emanated from him as from a hidden spring. His inaugural address upon his accepting the presidency, discovered to full view that living fountain of horticultural science, which still continues to cheer and invigorate us in all our gradually accumulating progress of useful and scientific improvements. And through him the society has been led to share very liberally of all those benefits arising from his extensive correspondence with the most valuable and scientific institutions of Europe. Nor are the sources of our improvements confined to these exclusively. Scientific men in all quarters of the globe hail us with open and friendly intercourse. And instead of those degraded minions of society, with which a proud ambition once thought to have stigmatized the practical gardeners of New-York, they have proved themselves by their enterprising industry and skill, not to be unworthy of the patronage and friendship of the first men of the age. And the page that records the history of our improvements in the fine arts, in noticing those of gardening, may justly pay a tribute to the days of a Hosack, and of those who may well be proud to rank as his cotemporaries. But we dare not stop here in our feeble survey of those valuable resources from which our society derives so much of the means of its prosperity. That venerable father in science and literature, Dr. Mitchill, has embraced us with open arms from the day of our earliest existence; and although silvered over with the hoary locks of age, and of never fading fame, most cheerfully accepted the professorship of lecturer on botany and vegetable physiology to the society; and whose services have not been limited merely to the invaluable literary communications which will remain as imperishable treasures in our archives, but has, like his worthy coadjutor, Dr. Hosack, continued, and still continues, frequently to present, for the use of the society, new and interesting collections of plants and seeds, sent to him by his valuable correspondents from all parts of the world.

The pages of our transactions have been adorned by the writings of many of the members; but the address delivered at our last anniversary, by Mr. Carter, the corresponding secretary, displays such correct views of the nature of our undertaking and of those measures to be prosecuted for our future advancement, in such a fine stile of elegant composition, that those of future ages who read the history of our transactions will not be surprised at the successful progress of our early days, when they perceive we have been assisted and supported by men of such refined taste and genius.

But it is not merely to the good offices of those of our own country, to which our advancement in horticultural improvements are to be ascribed. The Horticultural Society of London has countenanced and assisted us in our improvements, with a degree of liberality and friendship which ought never to be forgotten, nor referred to without receiving our warmest feelings of gratitude and esteem. Copies of all their valuable transactions are generously transmitted for our use as regularly as they continue to be printed; and to that

society we are indebted for the most extensive and valuable portion of our present library. To several private individuals in England, as well as in America, we are also indebted for valuable donations of books on horticultural and botanical subjects. But a periodical work, called the Gardener's Magazine, published in London, by Mr. Louden, and presented by him to this society, contains such an accumulating fund of useful and interesting information, that it seems difficult to determine which we ought to admire the most, the magnanimity of the editor or the great skill and ability with which his work is conducted. Amongst those who have been valuable contributers to the improvements of American horticulture, the name of Louden will ever stand conspicuous. Nor is it to those of England only to whom we are indebted for valuable contributions to our library. The interesting and scientific transactions of the Linnæan Society of Paris, have lately been added to it through the kind offices of Dr. Pascalis, President of the New-York Branch of that institution, and an honorary member of this society. From D. Raman de la Sagra, Professor of Botany in the large and public garden near Havana, we have also received an interesting work on the vegetable productions of the Island of Cuba. And wherever we look, the prospect bespeaks an era in American horticulture, in which has been laid, by the hands of able workmen, a basis for its future advancement, on which the labors of those of the present day bid fair to establish a glorious fabric, and which the achievments of after ages may still continue to adorn.

[From Loudon's Gardener's Magazine.]

ART. 53.—*Biography of* WILLIAM SPEECHLY, *gardener to the Duke of Portland, at Welbeck, Nottinghampshire.*

WILLIAM SPEECHLY, gardener to His Grace the Duke of Portland, at Welbeck, in Nottinghamshire, was born at a village near Peterborough, in Northamptonshire, and was the son of a respectable farmer, who gave him a good education. He had a strong natural genius, and was remarkably industrious, employing all the leisure of his youth in drawing plans, delineating fruits and flowers, and engraving them on copper plates. He also had a taste for music, but he laid that aside at an early period of life.

His unconquerable predilection for the profession of gardening led him to begin his studies early in the gardens at Milton Abbey, now Earl Fitzwilliam's; from whence he removed to the extensive grounds of Earl Carlisle, at Castle Howard, in Yorkshire. How long he studied at each of these places, and how long he was head-gardener to Sir William St. Quintin, before he was recommended to the Duke of Portland in 1767, is not exactly known.

In 1771, through the kindness and liberality of his noble employer, he made a tour to view some of the principal gardens in Holland. Soon after this the large improved pine and grape stove was erected at Welbeck, from Mr. Speechly's designs, and under his own immediate inspection. In 1779 his *Treatise on the Culture of the Pine-apple* was published, which opened quite a new era in that department of horticulture, and laid the foundation for the improvements which have followed, in rapid succession, to the present time. The same may be said of his *Treatise on the Culture of the Vine*, which was published in the year 1789.—The value to gardeners of these two books can only be estimated by a knowledge of the want of information at that epoch on the subjects treated of. In 1796 he published a second edition of his *Treatise on the Pine-apple*. After this he was engaged on some papers on domestic economy, at the request of Sir John Sinclair, President of the Board of Agriculture, which were to have been published in the *Transactions* of that Honorable Board; but the publication did not take place, and the papers were returned to him in 1800. He then had begun to write a *General Treatise on Gardening*, but the death of his younger son, who was established on an extensive farm at Woodborough Hall, caused Mr. Speechly to leave Welbeck and go to that farm, where he continued some years. During his residence there, he had the misfortune to lose his elder son, who died at the extensive nursery grounds of Withers and Speechly, at Newark-upon-Trent.

Mr. Speechly's intense genius had led him into a course of agricultural experiments, on which he wrote several essays, and obtained the approbation and honorary medal of the Board of Agriculture. After this he gave up his farm, and retired to King's Newton Hall, in the proximity of which the only surviving branch of his family then resided, and whose removal, first to London, and then to a villa in Oxfordshire, caused Mr. Speechly to remove to the same neighborhood. He died at Great Milton on the 1st of October, 1819, in the 86th year of his age, surviving Mrs. Speechly above two years.

During the retirement of Mr. Speechly, he digested his essays, and formed a small volume of *Practical Hints in Domestic Rural Economy*, a work of merit and usefulness.

Mr. Speechly was not a systematic botanist, but, as a kitchen, fruit, and forcing gardener, he was exceeded by no man of his time. He was strictly honest and honorable, modest, unassuming, cheerful, frugal, of domestic habits, and, though a practical gardener, yet having the manners of a gentleman.

It was his good fortune to be in the employ of a family who ever were, and still are, the most enlighted

and liberal patrons of agriculture, gardening, and planting. By the extracts from the Sloanean Manuscripts in the British Museum, which are printed in the preface to the *Hortus Kewensis*, p. xii., it appears that the extensive collection of plants at Kew originated in a great measure in a gift from an ancestor of the present Duke to the royal gardens at Hampton Court in 1690.

It seems, by a letter and plan published in the second edition of the *Treatise on the Pine-apple*, that a regular correspondence subsisted between Mr. Speechly and his favorite pupil, Mr. Joseph Thompson, then gardener to the late Lord John Cavendish, in Northamptonshire. When Mr. Speechly left Welbeck, in 1801, he recommended Mr. Thompson as his successor; and the present state of the extensive forcing-houses, the botanical arrangements, and the general improved state of Welbeck grounds, shows that Mr. Speechly's confidence in his successor was by no means misplaced.

We insert the following communication from Professor Eaton, hoping it will serve to excite more attention to a subject, which we deem of great importance. We should have been pleased, however, had Mr. E. given his authority for asserting that the Hoffwyl School had failed in its most important feature, as the fact is new to us. It is our full opinion that the day is not far distant when numerous and successful experiments will prove to the enlightened world that every youth of six years of age, put as an apprentice to a regularly organized school of industry, until he is eighteen, will be able, by his own labor, to feed, to clothe, and to educate himself. We already see, in the revolution of a few years only, institutions rising in every part of our country, where youth will alternately recreate themselves with mental and bodily exercise—where the certainty of receiving a full compensation for the product of their labor, will animate and stimulate them to exertion—where the natural and pleasing presentation of the objects of investigation, will produce a love for knowledge that will never fail to result in a high degree of mental cultivation, and increase the capacity of the mind for rational enjoyment.

ART. 54.—*Agricultural Schools. Addressed to the Editor of the New-York Farmer and Horticultural Repository. By Professor* EATON, *of Troy.*

SIR—I hope you will admit one correspondent, who may occasionally express his dissent, or at least his doubts, in some cases, where the whole world seems to be hurried on in the same direction, as if by an irresistible torrent. Every one admires the Hoffwyl School, established by Fellenberg. Few, however, know that Fellenberg himself has totally abandoned, *in practice*, the plan with which he commenced. *Students do not labor either on the farms or in the workshops; excepting a hired set, merely to keep up the appearance of labor.* Of this I have received assurances, which I cannot question. I presume there are at least one dozen persons in the city of New-York, who will convince you that I am not misinformed. And I venture to add to this statement, that I have tested, by numerous trials, the *laboring plan of education, and that I do not believe that it ever did, or ever will succeed.*

After abandoning all expectation of success, and becoming convinced, that the laboring part of the system adopted at the Hoffwyl and other schools, was totally useless, I adopted the following measures. I obtained permission of the mechanics in Troy and Lansingburgh, for the students of Rensselaer School to inspect their various operations, and to receive instruction in their workshops. This I have found to be a most efficient measure, after a trial of three years.—Students are always delighted thus to see the applications of the experimental sciences to the useful arts. I have no knowledge of any measure which excites so much zeal in the cause of science, or which proves to be of so much substantial benefit to the learner. Being encouraged by success in this attempt, several good farms, on Mr. Van Rensselaer's Manor, were put on the Rensselaer School list, as places for agricultural instruction. The farms were all occupied by tenants; but the tenants were to be paid by deductions from their rents, for any damage or inconvenience suffered from the school. These were, and still continue to be, visited by the students very profitably. Every student learns practical surveying on these farms. All take portions of the soil of various fields, analize them carefully in the laboratory, compare the results with the kinds of vegetables which grow best and worst on them, &c. &c.

By these measures, which it will not be proper to give in detail at this time, students learn the results of mechanical and agricultural operations, which are made in good earnest with a view to profit. For example, instead of half tanning a skin or two in a contracted shop, as at Fellenberg's School, we see at Geary's factory ten thousand hides at once under the operation of the best manipulations which art and science can furnish. Instead of a bungling botch in making metalic instruments, with a scanty set of tools, we may see at Hanks' establishment the nicest graduated instruments manufactured, and both light and heavy castings made upon the best modern plan. I might enumerate more than fifty trades, which we have on our school list; all of which are pursued *in earnest*, to the best advantage. The instruction received from these artists is as superior to that which the *sham-shops* of Fellenberg afford, as the strength of a *real* elephant is superior to that of a *sugar model* from the toy-shop.

Students may learn the physiology of vegetation by

trials upon plants in a small way; but they can never learn to conduct the labors of a farm, but by laboring *in earnest* year after year, and watching the progress of real agricultural operations. They may learn the scientific principles upon which the operations of every artist depend; but an apprenticeship *in earnest* is essential, to make an artist. They may work in the laboratory until they acquire nice accurate habits, which fit them well to enter upon the course of accurate manipulations peculiar to any trade. Finally, they may learn to think acurately and justly on the nature and properties of all bodies, with which they may be concerned in life, as farmers or mechanics, by an experimental course of education. But sham-labor will never qualify them for the duties of farmers or mechanics. Yours, &c.

AMOS EATON.

Rensselaer School, Troy, March 8, 1828.

[For the New-York Farmer and Horticultural Repository.]

ART. 55.—*Remarks on Cobbett's directions for the growth of the Camellia.*

Mr. Editor:

In the present advanced state of horticultural knowledge it seems rather strange that those gross errors in Cobbett's work on American Gardening should have remained so long unexposed; as nothing tends more to retard our progress in improvement, than the promulgation of erroneous doctrines or statements on the subject. The work above alluded to exhibits such a mass of ignorance on the nature of American gardening, that if it had not been for the circumstance of seeing the following extract copied from it in the New-England Farmer, I should have been led to believe that it had been consigned to that oblivion which ought to be the portion of the works of every man so strongly calculated to impose upon the credulity of the public, and to lead them into a practice which could not fail of being attended with disappointment and loss. The following is the extract to which I allude:

"Camellia. This shrub, which is of the laurel tribe, has lately been introduced in England from Japan. It bears a flower, which, when open, resembles a good deal a large full-blown rose, and these flowers on different plants are of different colors. It is raised doubtless from seed, but may be grafted on the Hawthorn, and I dare say on the Crab. Some of the plants have been sold at 20 or 30 pounds each. By this time they are probably sold at a dollar. The plant, as well as the flower, are handsome, and certainly cuttings for grafting may easily be brought from England. They will stand the winter as well as any of the American laurels."

In the above, Cobbett, contrary to Linnæus, to Jussieu, and every other respectable writer on plants, ranks the Camellia with the laurel, to which it bears not the smallest degree of affinity. It is true he does not pretend to pay much regard to the rules of science, which the woful slang of his 330th and 331st paragraphs abundantly proves. But upon what ground does he assert that the Camellia may be grafted upon a hawthorn or a crab? It may be grafted upon a cabbage, or even upon his vegetable idol, the ruta baga. But can he refer to any instance of its ever having been grafted upon a thorn or a crab with success? The Camellia is a valuable plant, and the author who directs or encourages his neighbor to divest it of its limbs, to be wasted upon a thorn, ought to be made to feel the prickle. For what purpose does he propose to import cuttings for grafting from England. The grafting of this plant has only been found practicable to be performed with a cutting previously to its total separation from its mother plant, which is called grafting by approach; and if he means this way of introducing the cuttings for grafting, the plants in England would require to have pretty long limbs, and would, I think, need a few of his clear headed laborers employed very actively about their roots, to enable them to extend their boughs across the Atlantic. He says, "They will stand the winter as well as any of the American laurels." So he might have said of orange and lemon trees, but who would be willing to try the experiment when the thermometer ranges in the vicinity of zero? And who ought not to be a little cautious how they hold up the writings of such an ignoramus for the imitation of the citizens of America?

A Grower of Camellias.

N. York, March 10, 1828.

[From a Bedford (Pa.) Paper.]

ART. 56.—*Ploughing. Its depth to be regulated by the nature of the soil, and of the crop to be raised.*

Earls Stimson and Lorain disapprove of deep ploughing. The ideas of the former appear to be grounded on the beneficial effects of shallow ploughing on his own particular farm. It is a practical result of a solitary experiment.

Lorain argues that deep ploughing places the rich surface mould below the reach of the roots of the vegetable, and should never be resorted to except when the surface of the soil has been exhausted by a bad system of tillage, and the subsoil is rich and deep, and will supply the deficiences in vegetable pabulum, caused by frequent ploughing and severe cropping.

The advocates of deep ploughing (and Tull led the way) assert, that at every ploughing, a great fermentation takes place, and an exhalation of many tons to the acre; and that the quantity of gas exhaled is in a ratio with the depth the earth is moved. That the ground

being moved to a great depth, the roots of the plants have greater latitude to extend themselves, and consequently the facilities of collecting their food multiplied. That the moisture does not evaporate as rapidly from deep as from shallow moved earth, consequently the plants are less affected by dry seasons.

There is an appearance of truth in each hypothesis, but "who shall decide when doctors disagree?" It is probable the practice of each is advisable, under certain circumstances. I cannot, however, reconcile the theory of Lorain with the practice of the Chinese. They never suffer their lands to rest; they plough deep, and spade deep; but then they manure for every crop. But from whence comes the matter, the *material* which enables them to return as much from the soil as they take from it? We answer, by the strictest care of the barn-yard manure, by a judicious use of lime, ashes, and above all, the preservation of that most powerful of all manures, night-soil, without which last, China would not support, by a number of millions, as many souls as now find plenty and happiness under the auspices of a wise and benignant government; but our vulgar, barbarian prejudices, cause us to look upon it as a nuisance. In Pekin, Nankin, &c. it is mixed with lime fashioned into cakes, and exposed on the shambles for sale to the country people.

I have often thought that the relation of what one has done in the pursuit of one's profession, is worth a volume of theory. To relate actual experiments, I conceive to be the best way of conveying information to the great mass of readers.

In the fall of 1824, I fenced in about an acre of land for a garden, after cutting the timber off it. It was manured and well broken up. In the spring it was harrowed, cross-harrowed, and sown with some garden seeds. The crop was poor, as might be expected from such rough preparation. I had often heard of trenching a garden, and knew that Mr. McMahon, late of Philadelphia, seedsman, had trenched his garden two feet deep. When I saw it some fifteen years ago, it was astonishingly productive. William Cobbett, in his excellent book on gardening, recommends the practice strongly. I determined to make the trial, and if the success justified the expense, to trench my whole garden.

In the fall of 1825, the garden was manured heavily with a vegetable substance, taken from a cranberry swamp, (Mr. Eustis's Ash Pocosin) mixed with lime, ashes and barn-yard manure. A bed of four square rods was marked out, and two men, each with a grubbing hoe and shovel, began to dig a trench 2 feet wide and 2 feet deep. When this was dug, they began another trench of the same width, the earth of which was thrown into the first dug trench, the top-soil, lime, ashes, and all, into the bottom, and the bottom soil on the top. This work was continued till the bed was trenched, and it was a matter of great labor.

Dung was hauled on the top, spaded in, and in the spring, parsnips were sown in drills, and radishes between the parsnips. The radishes vegetated weakly; the greater part died by reason of frost or other causes. The few that survived were very small and ligneous, and totally unfit to eat. Very few of the parsnips came up, and supposing the frost had destroyed them in the seed-leaf, I resowed them. About the middle of June, found the prospect of a crop desperate, and having some beet plants, set them out in the vacant spaces. These flourished well, some of them attaining the weight of four or five pounds. The parsnips were good for nothing.

In the spring of 1827, this bed was again manured, dug well with the spade, and sown in parsnips. They were well worked during summer, and harvested the middle of November; a poor crop, bad straggling of roots. A carrot, the seed of which had no doubt been deposited by accident, came up in the bed and was dressed with the parsnips. It attained an unusually large size, and was very finely formed.

A vintner of the neighborhood, who trenched his vineyard as I did my parsnip bed, sowed carrot seed on the fresh earth, which was a slate gravel, and the crop was large and very fine.

It appears from this, that beets and carrots thrive well on land which has been deeply moved, though the subsoil contains but little vegetable matter, while parsnips and radishes decline and die. It is a fair inference that deep ploughing is beneficial to some vegetables and injurious to others; that the surface of the earth must be made to contain the nutriment of plants before the seed is deposited, or the plant will not arrive at its greatest excellence; that plants absorb a portion of their food by the agency of the foliage; and that the radicula is a co-agent in the work; that the larger the leaves, the greater is the absorption from the atmosphere, and the less will it exhaust the soil.—Hence beets and cabbage are not as great exhausters as oats.

Tobacco, however, is said to be a great exhauster, and no doubt is so. But tobacco returns nothing to the soil; nine-tenths of the plant is shipped to other countries. But if cabbage or beets are fed to cows on the land, as much fertilizing matter is deposited as will compensate for exhaustion by their culture, and I believe much more, because the nutritious gas attracted by the plant from the atmosphere is concentrated there, and will serve in reproduction, if not suffered to escape.

In August last I placed some manure from the hog pen round some beets. Their tops soon exhibited the effects of the application, flourishing beyond expectation. What the result would have been, I was pre-

vented from observing, by reason of one of the domestics, seeing the tops remarkably luxuriant, pulled them for the cows. From the moment of this operation the plant ceased to thrive. T. B. M.

[From Loudon's Gardener's Magazine.]

ART. 57.—*Outlines of Horticultural Chemistry. By* G. W. Johnson, *Esq. of Great Totham, England.*

However varying in the proportions, yet every soil is composed of a silica, alumina, lime, magnesia, oxide of iron, salts, and animal and vegetable remains.—The most important consideration is, what proportions those are which constitute a fertile soil. The *beau ideal* of a fertile soil is one which contains such a proportion of decomposing matter, as to keep the crop growing upon it always supplied with it in a state fit for introsusception, yet not so superabundantly as to render it too luxuriant, if the object in view is the production of seed: but, for the production of those plants whose foliage is the part in request, as spinach, or the production of edible bulbous roots, as onions, which have a small expanse of leaves, so as to be almost entirely dependent upon the soil for nourishment, there can scarcely be an excess of decomposed matter presented to their roots. Spinach, on rich soils, will yield successive cuttings, the same as to asparagus: the latter, especially, demands abundant applications of nourishment to its roots; since, like the onion, it has little foliage and slightly fibrous roots, at the same time that, like the spinach, it has to afford repeated cuttings, which, requiring a repeated developement of parts, need abundant food, and that in the immediate neighborhood. A soil with a just proportion of decomposing matter, which insures that it will be capable of absorbing moisture during the droughts of summer from the atmosphere, as the most fertile soils are always the most absorbent, yet it must not be too retentive of moisture, which is the case in such soils as contain too much alumina; neither must it too easily part with it, which is a characteristic of those which contain an excess of silica. A subsoil of gravel mixed with clay is the best, if not abounding in oxide of iron: for clay alone retains the moisture on the arable surface in too great an excess; and sand on the contrary carries it away too rapidly. It is, however, evident that to insure these desiderata in any soil, at all seasons, is impossible; and it is as manifest that a soil that would do so in one climate would fail in another, if the mean annual temperature of them should differ, as well as the amount in inches of rain which falls during the same period. Since, in the western parts of England, more than twice as much rain occurs as in the most eastern counties, or in the proportion of 42 to to 19, a soil in the east of England, for any given crop, may be richer and more tenacious than the one required for it on the western coast. Alumina, or clay, imparts tenacity to a soil when applied; silica, or sand, diminishes that power; whilst chalk and lime have an intermediate effect, they render heavy soils more friable, light soils more retentive. These simple facts are important; two neighboring fields, by an interchange of soils, being often rendered fertile, which, before, were in the extremes of tenacity and porosity. From these statements it is evident that no universal standard, or recipe, can be given for the formation of a fertile soil, but one whose constituents approach in their proportions to those of the following one cannot be unproductive in any climate. It is a rich alluvial soil, which Mr. Sinclair, in his individual *Hortus Gramineus Woburnensis*, gives as being the most fertile for the grasses.

"Fine sand, 115; aluminous stones, 70; carbonate of lime, 23; decomposing animal and vegetable matter, 34; silica, 100; alumina, 28; oxide of iron, 13; sulphate of lime, 2; soluble vegetable and saline matter, 7; loss, 8; Total, 400."

I have already stated what chiefly constitutes a fertile soil; it may be added that, to constitute one eminently such, its earthly particles must be in a minute state of division, the more so the more fertile will it be. In the above analysis 185 parts only were separable by sifting through a fine searce, 215 parts were impalpable; whereas poorer soils will often have 300 parts coarse matter to every 100 of finely pulverized constituents.

In affording warmth to plants, the earth is of considerable importance, and the power of accumulating and retaining it varies as much in soils as the proportions of their constituents. Sir Humphry Davy found that a rich black mould, containing one fourth of vegetable matter, had its temperature increased in an hour from 65° to 88° by exposure to the sunshine, whilst a chalk soil was heated only to 69° under similar circumstances; but the first, when removed into the shade, cooled in half an hour 15°, whereas the latter lost only 4°. This explains why the crops on light colored tenacious soils, are in general so much more backward in spring, but are retained longer in verdure during autumn, than those on black light soils; the latter attain a genial warmth the more readily, but part with it with equal speed. An experiment which I have often repeated upon light as well as tenacious soils with like success, demonstrates how greatly the color of a soil influences the accumulation of heat. Coal ashes were sprinkled over half the surfaces of beds sown with peas, beans, &c., and on these the plants invariably appeared above ground two or three days earlier, obviously on account of increased warmth; it being a well known fact that dark-colored bodies absorb caloric more readily, and in larger portions, than those of a lighter hue.

Different plants affect different soils. Every gar-

dener must have observed that there is scarcely a kitchen-garden but has some particular crop which it sustains in luxuriance far superior to any other garden in its neighborhood, or to any other crop that can be grown in it. My own garden, without the preparation of an artificial soil, will not produce the common garden cress (Lepidium sativum,) whilst the raspberry is remarkably luxuriant. That the composition of a soil has a main influence in these peculiarities is certain.—The nettle haunts, as it were, the footsteps of man, and clings, as poetry might urge, in very sociality round his dwelling. This plant will not flourish but in a soil containing nitrate of potassa (saltpetre,) a salt always abounding in the neighborhood of walls and places where there is calcareous matter. The rabbit warrens near Mildenhall, in Suffolk, I have noticed frequently as abounding in nettles, yet it is a houseless waste of many miles' extent; but, still, nitrate of potassa is furnished to the soil by the urine of the rabbits, which contains potassa and lime, in very considerable proportion. These topics, however, belong more properly to a future communication upon measures, which I shall next proceed to, because these ingredients of soils are strictly artificial or adventitious. It is certain that a soil is often considered unproductive, and that unproductiveness attributed to some deficiency in its staple, which is caused by erroneous management. I have before stated an instance of taprooted plants being produced of superior size and form, by means of applying the manure deep beneath the surface. In another instance, some parsnips being of necessity sown in a poor soil, having turned in some manure by trenching full 12 inches deep, I would not allow any to be applied to the surface; but, at the time of thinning, I set half the bed out at an average of 12 inches distance between each plant, the other half at 9 inches: when taken up for storing, the whole were alike perfectly fusiform, but those grown at 12 inches apart were the finest, as 4 1-2 to 3. If manure had been applied to the surface, the fibrous roots, I calculated, would be multiplied at the expense of the caudex, to its much greater detriment, than by making the few usually produced by this root extend in length by enlarging the circuit of their pasturage. Again, a more siliceous darker-colored soil should be employed for the growth of an early crop of any given plant, than is required by the main crop; because such soil will more readily get rid of the superfluous moisture, and acquire a more genial warmth, two great desiderata for vegetation in early spring. On the contrary, in autumn, for a late crop of peas for instance, the soil should be more aluminous; because, in August, September, &c., atmospheric moisture, in the form of night dews, abounds, the foliage is therefore perpetually subject to alternate extremes of moisture and dryness, whilst the root is liable to a state of exceeding drought: the soil, therefore, should be rich, kept in a minute state of division by frequent hoeing, that moisture may be absorbed, and more aluminous, that such moisture may be retained.

[From Nuttall's Botany.]

ART. 58.—*Character of a Liliaceous Flower.*

To acquire a knowledge of the vegetable world, so pleasing to all observers, it may not perhaps be amiss to anticipate the dry detail of technical phrases, which has but too often deterred, at the very portal of Flora's temple, the inquirer into the nature and character of this beautiful and useful tribe of beings, and begin, at once, by examining plants as we find them, in the manner our predecessors must have done, from whom we have received their history.

We ought then to commence by making ourselves acquainted with the common names of those plants which are around us, and these few objects, known by sight, will serve as so many points of comparison in order to extend our knowledge of the subject.

Let us not imagine that the science of Botany ends in the mere acquisition of imposed names; we may become acquainted with the structure of plants and their curious economy, like the human anatomist, without troubling ourselves materially with the particular name given to the individual subject. We cannot, however, proceed far, without employing something like definite language for the several parts of the object under view.

We shall begin, then, by defining a perfect plant to be composed of a root, of a stem with its branches, of leaves, flower, and fruit; for, in Botany, by fruit is universally understood the whole fabric of the seed, and that which contains it; but we must examine more at large the principal part of the plant, namely, the *fructification*, a term which includes the idea of both *flower* and *fruit*. The flower is first offered to us; by it is elaborated nature's choicest and most wonderful work, the mystery of perpetuation; this complicated organ is commonly the most brilliant, symmetrical, and uniform part of the vegetable.

Take a Lily or a Tulip; at first it is seen in bud, and green; at length it becomes distinctly colored, spreads open, and takes the form of a cup or vase, divided into several segments. This is called the *corolla*, and not the flower, as in common language, because the flower is a composition of several parts, of which the corolla is only the most conspicuous.

You will easily perceive that the corolla of the Lily or the Tulip is not of one piece; when it withers and falls, it separates into six distinct pieces, which are called *petals*. Thus the corolla of the Lily or the Tulip is composed of six petals. A corolla, consisting of several pieces like this, is called a *polypetalous* co-

rolla. If it were all of one piece, like the Bell-flower, Honeysuckle, or Marvel of Peru, it would be called *monopetalous*. But to return to the Lily.

You will find, exactly in the middle of the corolla, a sort of little column rising from the bottom, and pointing directly upwards; this, taken as a whole, is called the *pistil* or *pointal*: taken in its parts, it is divided into three. 1. The swollen base, with three blunted angles, called the *germ* or *ovary*; 2. A thread placed upon this, called the *style*; 3. The style crowned by a sort of capital with three notches: this capital is called the *stigma*.

Between the pistil and the corolla you find six other bodies entirely separate from each other, which are called the *stamens*. Each stamen is composed of two parts, one long and slender, by which it is attached to the bottom of the corolla, and called the *filament*; the other thicker, placed at the top of the filament, and called *anthera* or *anther*. Each anther is a kind of box or cell, which opens commonly on either side lengthwise when it is ripe, and throws out a yellow dust, which has often a strong odor, and this is called *pollen* or *farina*.

Such is the general analysis of the parts which constitute a flower. As the corolla fades and falls, the germ increases, and becomes an oblong triangular capsule, within which are flat seeds arranged in a double order in three cells. This capsule, considered as the cover of the seeds, takes the name of *pericarp*. In the Tulip the second part of the pistil, or style, is absent. All these parts of the flower, and in the same number, though differing in size and form, will also be found in the single Hyacinth. The same parts are found in the flowers of most other plants, but in different proportion, situation, and number. By the analogy of these parts, and their different combinations, the families of the vegetable kingdom are determined; and these analogies are connected with others in those parts of the plant which seem to have no relation to them. For instance, this number of six stamens, sometimes only three, with six petals or divisions of the corolla, and the triangular germ with its three cells, determine the liliaceous tribe; in many of its conspicuous genera, the roots partake more or less of the nature of *bulbs*. That of the Lily is a *squamous* bulb, or composed of scales, disposed in an imbricated order, or laid over each other like tiles on the roof of a house; in the onion it is *tunicated*, or consisting of a number of coats laid over each other circularly; in the Tulip the coatings are so indistinct, that the bulb appears nearly solid, and so approaches the nature of the tuberous root; in the Crocus the bulbs appear to grow over each other, or, more properly, beneath each other, for many bulbs have apparently a tendency to descend as long as the soil permits them; in the *Colchicum* they grow out side by side.

Bulbs appear often, if not always, to be produced by the subterraneous continuation of the bases of the leaves, taking upon them a thick and fleshy consistence, and containing within them resources of nourishment for the plant they are destined to support.—In the squamous bulbs, also, each scale often appears, like a bud, to possess the germ of an independent existence, so that the species may be increased by planting them. Bulbs have a prolific faculty superior to buds, with which they have been compared, as the scales themselves are capable of budding and growing upwards and downwards; but ordinarily the bud perishes if taken from its parent trunk, excepting it be done in connexion with a small portion of the *liber*, or inner bark, and be then ingrafted into the trunk of a similar species of plant.

In the bulb, all the nutritious, or cellular part, is carried inwards by the circulation to the support of the bud or embryon plant, after which the coats shrink, and at length turn into those brown scaly coverings, destitute of moisture and of life, which we observe around the Tulip and the Onion.

The Lily and the Tulip, which we have chosen to examine because of the conspicuous size of the flowers and their parts, are, however, deficient in one of the constituent parts of a perfect flower, namely, the *calyx*, which is that outer green part of the flower, usually divided into parts or small leaves, often five in number, sustaining and embracing the corolla at the bottom, and enveloping it entirely before opening, as you may have remarked in the Rose. The calyx, which accompanies so many other flowers, is wanting, in the greater part of the liliaceous tribe; as the Tulip, the Hyacinth, the Daffodil, the Crocus, and Snowdrop, &c. and even in the Onion, Leek, &c. which are likewise, generally speaking, also liliaceous, though they appear so very different at first sight. In the whole of this tribe you will perceive that the stems are simple and unbranched, the leaves entire, never cut or divided; observations which confirm the analogy of the flower and fruit in this family, by the prevailing similarity in the other parts of the plant. By bestowing some attention upon these particulars, and making them familiar by frequent observation, you will be in a condition to determine, by an attentive inspection of a plant, whether it be of the liliaceous tribe or not; and this without knowing any thing of its name. This is not then a mere labor of the memory, but a study and observation of facts worthy the attention of a naturalist.

THE WEATHER.

The season, 'tis granted, is not very gay,
But we cannot, in justice, complain of the weather;
For if changes delight us, we have in one day,
Spring, summer, and autumn, and winter together.

We recommend the following article to the attentive perusal of farmers. The facts concerning the kind of soil most suitable for the potato, are corroborated in the first article of this number, read before the Horticultural Society, by William Wilson, in 1823. Such facts speak volumes on the importance of circulating among farmers the experiments of scientific and practical agriculturists.

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ART. 59.—*Experiments on the Potato, by* Arthur Young. *Communicated for the American Farmer, by J. Buel, Esq.*

When Young made his experiments, this root was not considered a farm crop; it was very little cultivated for market, and not at all for farm stock. The *common* method then was to dibble in the crop, which was done in this way: a man, furnished with an iron-pointed dibble, struck holes promiscuously, about 12 inches asunder; women and boys followed and dropped a cutting in each hole; and the whole was then covered with the harrow. The crop was hand-hoed generally three times, and the plough used only in taking up the crop. This method has since given way to the drill and horse-hoeing system. I shall, therefore, omit the experiments with the dibble, as irrelevant, and confine my notice to those made with horse-hoed crops. These generally received three preparatory ploughings; and the after culture consisted of three or four horse-hoeings, and as many hand-hoeings. The results are stated below.

No.	Preceding crops.	Expense. *l.*	*s.*	*d.*	Product. *bush.*	at 1*s.* 6*d.*	Profit. *l.*	*s.*	*d.*	Loss. *s.*	*d.*
1,	fallow,	3	19	1	104	at 1*s.* 6*d.*	2	18	5	0	0
2,	barley,	4	5	9	128	2 0	7	11	10	0	0
3,	wheat,	6	18	6	46	0 20	0	0	0	0	1
4*,	do.	7	16	10	101	0 20	2	5	6	0	0
5,	do.	6	2	6	39	0 20	0	7	6	0	0
6,	do.	7	19	4	62	0 20	0	16	11	0	0
7*,	do.	4	14	5	170	0 20	9	0	2	0	0
8,	do.	8	9	8	80	0 20	0	0	0	15	7
9*,	do.	4	12	1	210	0 20	11	2	9	0	0

* Manured crops.

These results show the importance of manuring.—The manure employed in these experiments, I observe, was uniformly rotten or fermented. Modern experience has demonstrated, that in our climate, except upon very warm porous soils, which are not exactly adapted to this crop, long or unfermented manures are preferable. The product is in general diminutive for improved husbandry, and it was far the most so upon clay wet soils.

There are many erroneous notions in regard to the culture and treatment of the potato, which every class in society have an interest in exploding, as this root has become a necessary food in every family. These errors consist in supposing: 1st, That potatoes should be grown on a dry warm soil. 2d, That they should be dried in the sun, or washed, to render them pleasant to the eye. 3d, That they should be kept warm and dry during winter, to fit them for culinary uses. And 4th, That they should be of large size. In contradiction to these popular opinions, I will venture to say, and will endeavor to prove—

1. That the best potatoes are grown upon cold, moist, but porous and rich soils.

2. That it were better the sun should never shine upon them; that they should be housed with all the dirt that adheres to them; and that it is beneficial to add more in the bin or cask, to exclude external air as much as possible.

3. That their surface should be kept moist, and the atmosphere which surrounds, as little above the point of freezing as possible. And

Lastly. That those of medium, or small size, naturally, are best for all purposes; for they generally possess the best flavor, and contain the most nutritious matter according to their volume.

1. The best potatoes are grown in the west counties of England, in Ireland, and in Nova Scotia, where the average temperature of summer is probably twenty degrees lower than in New-York, and where clouds and fogs obscure the sun a great part of the season. We approximate this natural climate of the potato most, when we plant them in cool, moist and porous soils, such as reclaimed swamps, well drained, and abounding in vegetable matter.*

2. The potato belongs to the poisonous family of *solanum*, of which the deadly night-shade is a member. Its deleterious qualities are developed in proportion to its exposure to the sun and atmosphere. Excluded from these it is a palatable nutritious vegetable. Exposed fora long time to their influence, its color changes to a livid green, and its qualities undergo a chemical change; and in this state potatoes are said to have proved poison to animals which have fed upon them. Why do we admire this root most when fresh dug, or just taken from the pit, where they have lain buried in the cold moist earth during winter? Why do they so soon become clammy and strong in a dry cask and warm cellar? and why do they deteriorate in propotion to their exposure? Correct answers to these interrogatories surely indicate, that potatoes intended for our tables, should be exposed as little as possible to the sun or atmosphere.

3. If a cool and humid soil and atmosphere are most congenial to the perfection of this tuber, in its *growth*, they certainly must be essential to the *preservation* of

* In 1826, I planted the same variety of potato on a warm sandy soil, and in a reclaimed swamp, which might be called cold and moist. Both were manured. The latter was most abundant in product, and decidedly preferable in flavor. Those on the silicious soil were half cooked ere they were dug; and, on being brought to table, were found comparatively clammy and strong.

its good qualities, after it is taken from the ground. I appeal to the experience of any one who has taken cognizance of the fact, do we not reject those which by exposure have become green, as worthless for the table? Do they not deteriorate in proportion to exposure? And to what cause can this change be ascribed, but to the absence of humidity and the presence of heat? I was formerly in the habit of putting my potatoes into dry casks, and freeing them from dirt. Under this management they became, in a few weeks, comparatively worthless. Reflection taught me to vary my practice. I now put them in bins, with all the dirt which comes with them from the field; and I have added earth to the extent of two cart loads a season, and keep my cellar windows as open as the weather will admit, to preserve humidity and coolness. They now do well, and are but little impaired in quality by keeping.

4. Size is a bad criterion of quality, in vegetables as well as in animals. I gave illustrations upon this subject in the American Farmer last winter. Suffice it, or the present, to say, that one pound of the *small* kidney potato has been found, on chemical analysis, to contain about as much nutritious matter as two pounds of the *large* ox-noble. [See 4th vol. of the British Board of Agriculture on the culture of this root.] For delicacy of flavor and handsome appearance at table, the kidney has no less the advantage. And as to product, the difference is not so great as might be apprehended. One gives the largest tubers; the other the greatest number of them. But mark! while the woody fibre and water of the ox-noble abounds in all soils, the starch, mucilage, and saccharine matter of the kidney, should be liberally furnished in the form of manures. A good potato requires a rich soil.

In cultivating the potato, I prefer reclaimed swamps, abounding in vegetable matter, and thoroughly drained. A good dressing of long manure will repay expense even upon such soils; and it should be thoroughly turned under by the plough, even though an extra hand should be required to rake it into the furrow.

The potato is furnished with two sets of roots, the offices of which are distinct and different; one supplies food to the plant, the other conveys this food, after it has been elaborated and converted into nutriment by the leaves, to the young tubers. The first, the proper roots, shoot down or obliquely; and the food should be placed within their range. The others spread horizontally, after inclining upwards, and should have a bed of loose earth to repose in, and to permit the free expansion of the progeny which they nurture.—The fruit bearing roots, or runners, require air and warmth; and as often as these agents are excluded by earthing up the crop, the plant sends out new runners near the surface, and within their influence, which in their turn are furnished with tubers, which monopolize the food supplied by the plant. Frequent hoeings, therefore, may increase the number, without augmenting the bulk of the crop.

Upon a sand or gravelly loam, or other light soil, the potato is materially benefited by a grass lay or sod.—This shields the roots from extreme heat, and counteracts the severity of drought. Manure is profitably applied in this case; but on stiff adhesive soils it is indispensable to a good crop.

To produce early potatoes, I find it recommended in Loudon's Gardener's Magazine, to save seed before the tubers have fully ripened, to expose them some days to the influence of the sun, and to select the top ends for the earliest crop. A correspondent made the following experiment. He dug every other row for seed while the vines were fresh, exposed them in the sun until they had become wilted and green. In February he cut them crosswise, leaving the top and bottom in separate sets; he cut those which had been suffered to ripen, in a similar manner, and planted the four kinds in alternate rows. They were all planted on stable litter, and covered with about three inches of earth. A part of each kind received no subsequent earthing. I give the result in the writer's words:

"The early potatoes not earthed up, grew close around the stock or stem, like eggs in a nest, and so near the ground that they might be picked off with the finger, leaving the stock or stem uninjured, to produce more potatoes from the runners. From the eye sets of the unripe tubers, we had a full supply every day for a fortnight; when those from the bottom sets came into use for another fortnight; at that time potatoes from the eye or top sets from the ripe seed came into use, and were succeeded by potatoes from the bottom sets of the ripe seed. Those kept for seed, or the table, were earthed up as usual, and each row produced almost as large a crop as any two rows not earthed up—the luxury of an early potato being a greater object than the quantity."—*Gard. Mag.* 11, 172.

By way of contrast to Mr. Young's experiments, I subjoin two experiments made by myself, in which the results were carefully noted. It is proper to remark, however, that I improve a light silicious soil, which is rather injured than benefited by repeated ploughings.

EXPERIMENT 1.

Culture, Expense, Produce and Profit, on an acre of sand loam.

Culture.—The field was in clover. I carted into it 25 loads long manure in May, and dropped it at suitable distances for spreading; marked out two lands of equal breadth, 20 feet; and having my seed prepared, proceeded to plant, which occupied three men, a boy and team, three half days. One man took charge of the team; a second raked the manure into the furrows and trod it down; a third spread the manure and as-

sisted the boy to drop the seed. The rake followed the first furrow, and the manure from 2 1-2 feet of surface was drawn into it, and the sets dropped at eight inches distance on the manure. The plough followed, and turned three furrows. In the mean time, the seed was dropped in the first furrow of the second land, to which the plough followed, and in this way they alternated till the planting was completed. The ground was then rolled, harrowed as the plants began to break the surface, and subsequently ploughed between the drills, and hand-hoed once. About half the field was a dry sand knoll, which suffered severely from the drought; and the crop here was but a little more than fifty per cent. of the product of the other half. The product was ascertained by the agricultural committee, and the aggregate embraced the entire acre.

EXPENSE.

Team 1 1-2 days ploughing in seed,	$1 50
2 men and boy planting, 1 1-2 days,	2 00
25 loads manure,	18 75
25 bushels seed,	6 25
Rolling, harrowing and horse-ploughing,	50
Hand-hoeing once,	75
15 days taking up crop,	7 50
	37 25
Rent,	5 00
	$42 25

PRODUCT.

430 bushels, at 25 cents,	$107 50
Deduct expense,	42 25
Profit,	$65 25

EXPERIMENT 2.

Culture, Expense, Product and Profit, of an acre of sand loam.

Culture.—This crop had been preceded by wheat. It had 25 loads of long manure spread and ploughed in. The ground was then harrowed, furrowed, or listed, with 2 1-2 feet intervals, the seed dropped at eight inches, covered with the plough, a furrow on each side, and the ridgelets rolled. The after-culture consisted of two horse and hand-hoeings. The crop was harvested with the plough and potato hooks. The product determined by the agricultural committee.

EXPENSE.

One ploughing,	$1 00
Manure, 25 loads,	18 75
Seed, 25 bushels,	6 25
Harrowing, furrowing, rolling and horse-hoeing,	1 00
Planting and covering,	1 25
Taking up crop,	6 00
	34 25
Rent,	5 00
	39 25

PRODUCT.

460 bushels, at 25 cents,	$115 00
Deduct expense,	39 25
Profit,	$75 75

I charge the whole manure to the potatoes, although the subsequent crops receive half its benefit. The manure was purchased at 12 1-2 and 25 cts. the load, and drawn two and a half miles. The crop is estimated at the minimum price, the medium being at least 50 per cent. higher in market.

I cannot close this subject without earnestly recommending to the potato cultivator, the use of a potato hook, sold by Mr. Newell, at Boston. The common hook is 25 per cent. better than the hoe or spade for harvesting this crop; but that to which I refer is 20 per cent. better than any other which I have seen. Its advantages will compensate for its cost in a few days.

J. BUEL.

Albany Nursery, Feb. 23, 1828.

ART. 60.—*An act for the promotion of Agriculture, and encouragement of Manufactures.*

The following bill has passed the Senate of Pennsylvania:

Whereas, the agricultural interests of this commonwealth have never been protected by legislative aid. And whereas, the farmers, as well as all our citizens are made dependant on foreign supplies for the raw materials necessary for the manufacture of various articles now made the objects of indirect bounty by the fostering care of the general government. And whereas hemp and flax constitute important items of home consumption, and might become the basis of valuable manufactures for foreign trade, giving stimulus to agriculture, affording employment for the capital and labor of our citizens, thus advancing internal improvement, augmenting the wealth, and enlarging the enjoyment of all; therefore:

Sect. 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same,* That the sum of $10,000 is hereby appropriated, to be drawn by the warrant of the governor in favor of the person who on or before the first day of March, A. D. 1835, shall, before commissioners to be appointed for the purpose by him, exhibit and try the most perfect machine or machinery for dressing and reducing flax or hemp, without dew or water rotting, to the state fitted for manufacturing, and who shall satisfy them by such trials as they shall deem proper that the said machine or machines are fitted to effect the objects aforesaid, and that the expense of constructing, erecting and keeping in repair and working said machines shall not be too great for the purposes

contemplated by this act, and who shall secure to the citizens of this commonwealth the right of employing said machine or machines free of any charge whatever.

Sect. 2. *And be it further enacted by the authority aforesaid*, That immediately after the passage of this act, the governor shall appoint three commissioners, whose duty it shall be to publish the same, and to give notice of the place where such machine or machines are to be exhibited, and who, or a majority of them, shall examine and try the same; and if in their opinion any machine or machines so exhibited, after ample trials in the preparation of at least five tons of flax, neither dew nor water rotted shall appear to them fitted to effect the objects of this act, they shall certify the facts together with the name of the inventor or proprietor thereof, accompanied by a conveyance in due form from the said inventor or proprietor, authorizing the citizens of this commonwealth to erect, use and employ all such machine or machines, and process or processes necessary for the accomplishment of the intentions of this act, free of all charge whatever; and on the receipt of such certificate and conveyance the governor shall draw his warrant on the state treasurer, in favor of such inventor or proprietor, for the aforesaid sum of ten thousand dollars.

[For the New-York Farmer and Horticultural Repository.]

ART. 61.—*Experiments on Posts for fence. By a Subscriber.*

Mr. Editor—If you think the following remarks worthy a place in your useful publication, you are at liberty to insert them.

By a number of experiments, I find that posts for fence of most kinds of wood that are cut from old full grown trees, will not decay so soon as those from young and thrifty ones—and that posts taken from the butt cut of the tree will not last more than half as long as those made from the third and fourth cuts from the ground. When made from the butt cuts of young and thrifty chesnut trees, of a size to make two posts, they will not generally last more than eight or ten years, while those from the third cut of old trees will generally last over twenty years. Butts of oak will often last from fifteen to twenty, and those taken from nearer the tops thirty or forty years. Locusts are more durable, but the remarks are equally applicable to them, as it respects the proportion of the durability of the butt and the higher cuts. If it is necessary to use the butts, several years may be added to their duration by setting the top end in the ground.

By giving instruction to rail-makers to use the butts for rails and the upper parts for posts, farmers would make a great saving.

Yours, &c.

A SUBSCRIBER.

[For the New-York Farmer and Horticultural Repository.]

ART. 62.—*Account of a very rare and uncommon Botanical Book, given in a letter from* Dr. Mitchill, *to H. Hewson, Esq.*

New York, March 22, 1828.

Sir—The book you left with me a few days ago is, as you seemed to think, really a rarity. It is a performance of Nicholas Joseph Jacquin, Professor of Botany, at Vienna. It is entitled *Hortus Botanicus Vendobonensis;* and was published in latin, during the year 1770. So uncommon a work deserves a somewhat particular notice. The history of it seems to be this:

Some of the plants with which the garden had been enriched, had perished; and of others the very recollection had been lost. These occurrences were considered as detrimental to science. To guard against such accidents for the future, it was determined to make descriptions, illustrated by figures, of the more curious species that had survived. These are bound in an imperial folio, in very good preservation. It is stated in the preface, that as there would be few purchasers of such a dear publication, there were no more than one hundred and sixty two copies printed. The copper-plates were immediately destroyed, that there might be no possibility of making a second edition. I conjecture, therefore, that it was resolved to distribute them as presents; since the superb and splended volume is dedicated to Maria Theresia, Empress of the Romans, Queen of Hungary, Bohemia, Dalmatia, Croatia and Slavonia, Archduchess of Austria, &c. &c. &c. The frontispiece is a plan of the garden and the disposition of the beds and buildings, with marginal notes and explanations.

The plants figured are two hundred in number, most of them as large as life; and where the case admitted of it, the representation is entire, including the root. In many instances the anatomy of the flowers is given for aiding the botanist's researches. The parts are, when necessary, enlarged by the microscope. All the figures are colored from nature. He states, though he neither drew nor colored them himself, yet he superintended their execution with the most scrupulous care, and took great pains to have them accurately finished.

The volume appears to have once belonged to Benjamin Franklin. If so, it was probably a present to him, by imperial order, while he represented the United States in Europe. It is a proper article for a public library, and would there form an important series of the vegetable likenesses it contains, for references and elucidations. I hope you may find a purchaser, and that it may be preserved in one of our learned collections.

Be pleased to accept the assurances of good will and respect. SAMUEL L. MITCHILL.

[For the N. Y. Farmer and Horticultural Repository.]

ART. 63.—*Best mode of planting the Grape Vine. Communicated to the editor by* ALPHONSE LOUBAT.

Loubat Vineyard, near N. Y. March 25, 1828.

The months of March and April being, in this country, the most favorable season for planting the Grape Vine, I have thought it might be interesting to those who wish to undertake the cultivation of this precious plant, to offer some remarks on the best mode of performing it. With this view, I take the liberty of addressing to you the following lines, which you are welcome to insert in your journal if you think them useful.

The Grape Vine is produced either from the slip taken from good and wholesome vines, or by transplanting the roots themselves. By the first mode, it requires six or seven years before the vine can be in full bearing; and for the two first years, you have to replace the plants which have failed, and which may be generally estimated at one-third part of the whole that has been planted. The second mode is far the best; for, by being supplied with good roots, about two or three years old, there is no danger of losing them, and on the second year, they will yield fruit.

In countries subject to severe winters, the season for planting is the latter part of March or the beginning of April. Trenches, eighteen inches wide and twenty deep, must first be prepared. Could these trenches have been made in the course of the preceding summer or autumn, it would be still better; the earth, thus having had time to lay open to the air, would be more favorable to the plant. The most economical and expeditious way of performing this operation is by using the plough, and going three or four times over the same furrow with it; after which, the loose earth is taken out with the spade, and the trench made to a proper depth. If the plantation be but small, or the expense no consideration, the best way is to work the ground altogether with the spade, and turn it up in all directions.

In lands which are very dry, you must plant from fifteen to eighteen inches in depth; the drier the soil the deeper you must plant. In rich soils, from twelve to fifteen inches are sufficient. The plants ought to be placed four, five, or six feet distance from one another, according to the quality of the soil. The richer it is the more distant the plants must be. If horses be used for ploughing, the rows ought to be placed at six feet distance; and at seven, if oxen be used. The rows must be made in a straight line, in order to facilitate the ploughing. Finally, if the spade be only used, the plants may be placed at five or six feet distance, both ways; but in all cases, care must be taken not to place the plants of one row immediately opposite those of the next row.

The best mode of planting the Grape Vine is this:—You lay down six inches of the plant, flat at the bottom of the furrow or trench, and lean the upper part of it on the side of said ditch, so as to form the figure of an angle, then placing one foot on the roots to press them flat with the bottom of the ditch, you cover the plant with three or four inches of good soil well pulverized, or two handfuls of moistened ashes, which are pressed strongly over with the foot. After which, the trench is filled up with earth, only leaving out, uncovered, two eyes of the plant. The trenches, at the time of planting, must be free from water; if any should remain in them, wait until they are dry.

ALPHONSE LOUBAT.

[From the New-England Farmer.]

ART. 64.—*Poisoned Sheep—the herb that affects them, and the mode of cure.*

This being the season which requires particular attention to sheep, perhaps I may render some service to my brother farmers, by making public through the medium of your paper a few practical observations tested by experiments of my own, relating to these profitable and necessary animals. Many farmers or wool-growers seem to treat them with too much neglect, and others with too much care; some confine them closely, while others permit them to range at large. Too much confinement does not contribute to their health, and too much liberty exposes them to various evils, one of which is poison. This I believe is the sole cause of the destruction of more of this species of animals, than all the dogs in the universe, although the loss by these is very considerable. It is not my design to write a treatise on the management of sheep, but to state briefly what I know to be the way or manner in which this poison is generally taken, and to point out a specific remedy. Poison is most prevalent among them in the spring of the year, and is taken by them, as the first green herbage to which they generally have access in sufficient quantities to satisfy their hunger, in what are commonly called *laurel* and *white bush*, either of which is greedily eaten by them at this season. The symptoms, or rather the disorder itself, cannot be mistaken; it is a kind of intoxication, or insensibility, which, without proper treatment generally terminates in death, though life, in some instances, continues for many days. The remedy is but to give the poisoned animal a small lump of *butter*, or a quantity of *oil* or *grease* of the skunk, by some called polecat; the latter is said by some to be preferable, but the first, if given while the animal has sufficient life, or warmth, to enable it to swallow or receive it into the stomach, effects a cure. The operation of either, is this: a nausea or sickness is soon produced which dislodges the poisonous vegetables eaten, and the cure is done.

A FARMER.

ART. 65.—*Summary of Intelligence.*

The High Cranberry.—Few people seem to be aware, (says the N. E. Farmer,) that this shrub, or small tree, which grows plentifully in the marshes and swamps around us, yielding rich clusters of very handsome fruit, a delicious tart, may be cultivated with ease and success in our gardens and shrubberies. Without knowing that the attempt had ever been made, I tried it last spring, with some half a dozen shrubs from Saratoga county, all of which bore the transplanting very well, for they lived, grew as vigorously as most vegetables do the first year, and some of them bore fine bunches of fruit. The twigs, taken off, put out as cuttings, also took; which shows with what facility we may stock our gardens with cranberries.

Sugar from Beet Root.—At a dinner recently given by the town of Amiens to the king of France, there was placed on the table, opposite his Majesty, an immense column composed of sugar, manufactured from the sugar beet root, at Franvilliers, near Amiens. The column consisted of four different qualities of refined sugar, and crystals of raw sugar formed the pedestal. The manufacture of sugar from beet-root seems to be making great advances in France.—*Loudon's Gardener's Magazine.*

Rousseau's Herbal.—We have just seen the MS. Herbal of the Philosopher of Geneva. It consists of eight small folio volumes, bound up neatly in vellum, each volume having a thong of the same material bound three or four times round it. The plants are crushed flat, and fastened to the paper with gum; and the natural history, or rather the scientific description of each, is written on the opposite page, in Rousseau's small, beautiful hand-writing. A very pleasing scent exhales from the volumes when open; and neither the leaves nor the flowers of the plants have lost their brilliant colors. The MS. is valued at three hundred guineas.—*Weekly Review.*

Fences.—Mr. Preston, of Stockport, Pa. (says the New-England Farmer,) recommends setting posts with the top part placed in the ground; and intimates that they will, in that position, last three or four times as long as when the butts are placed down. The same judicious and experienced agriculturist advises, in making fences always to place the rails with the heart side up. The posts should be set at least two feet in the ground. If those parts of the posts which are to be placed in the ground are burnt in a hot fire till quite black, they would last much longer than they would otherwise. Some farmers cut their posts so long, and mortise them in such a manner, that when the lower ends have become rotten, they can turn them upside down, and it is said that they will last nearly as long again when managed in that manner.

Straw Paper.—We have on our table, (says the Harrisburg Argus,) a slip of paper, manufactured from straw, at the mill of Col. Magaw, near Meadville.—The specimen before us, though without sizing, may be written upon without the ink spreading in the least; it is somewhat rough, but being the first that was made great improvement may be expected to be made upon it.

Mulberries and Walnuts.—One of the characteristics of the present age is the quickness with which productions are obtained for which formerly we were obliged to wait many years. A friend of mine, who has not planted his garden more than two years, has already gathered mulberries and walnuts; the latter are from considerable trees, which had bore in the nursery before removal, and which were obtained from Harrison and Co. from Brompton; the former are from standard trees from Luchanan's nursery, Camberwell, which contains the largest plants of this tree in the trade; many of them have bore fruit for two or three years, and when removed to a private garden with care, will bear the first year.—*Loudon.*

Water Melons.—Among the peculiarities of the season, says the Macon Telegraph, of the 31st Dec. may be mentioned the appearance of a load of *water melons* in our market on Christmas day! They were brought, we understand, from Twiggs county, and sold at a good price. In the garden of Dr. Bird, of this town, *Strawberry vines* have been for some time in blossom.—*Southern Agriculturist.*

Dahlia.—This most beautiful autumnal flowering plant is a native of Mexico, and of late introduction into this country. It has more than 150 varieties now cultivated in Europe.

Variegated Euphorbia.—A beautiful new annual, brought by Major Long from the Rocky Mountains; the flowers are of a beautiful green and white stripe, and bear in profusion from July till December.

GREEN HOUSE PLANTS.

"Now let us range both far and wide,
Through all the garden's boasted pride.
Here Jasmines spread the silver flow'r,
To deck the wall or weave the bow'r;
The Woodbines mix in am'rous play,
And breathe their fragrant lives away.
The rising Myrtles form a shade;
There Roses blush and scent the glade;
The Orange with a vernal face,
Wears every rich autumnal grace;
While the young blossoms here unfold,
There shines the fruit like pendant gold;
Citrons their balmy sweets exhale,
And triumph in the distant gale." COTTON.